

ABSTRACT

Title of dissertation: RACIAL DIFFERENCES IN PSYCHOTIC-LIKE
 EXPERIENCES: A STUDY OF SCHIZOTYPY IN
 AFRICAN-AMERICANS AND CAUCASIANS

 Kimberly Anne Adams, Doctor of Philosophy, 2007

Dissertation directed by: Professor Jack J. Blanchard
 Department of Psychology

A considerable literature has long indicated that African Americans consistently receive more clinical diagnoses of psychosis than their Caucasian counterparts although higher rates of schizophrenia in African Americans have not been reliably documented. Prior studies are limited in that while many have found elevations in psychotic symptoms and schizophrenia diagnoses in African Americans patients, it is unclear whether these race differences indicate true rates of psychosis or whether other mechanisms such as lowered medication compliance and limited access to treatment might be complicating these findings. Further, comparisons between racial groups in studies of psychosis-proneness have focused primarily on mean group differences in overall psychotic symptoms. While helpful in establishing the existence of symptom differences in racial groups, these findings do not provide more qualitative information regarding the specific nature of these differences. It can therefore be suggested that a comprehensive understanding of the role of race in schizophrenia remains elusive. The goal of the current study was to extend the available research on race differences in the experience of psychotic-like experiences by addressing the following hypotheses in a sample of

putative schizotypes (social anhedonics): 1) Social anhedonics will report more psychotic-like symptoms and experiences than controls, regardless of race, 2) Psychotic-like experiences will be more prevalent in socially anhedonic African Americans compared to socially anhedonic Caucasians, and 3) socially anhedonic African Americans will report more psychotic-like experiences with religious and paranoid themes than socially anhedonic Caucasians. Possible reasons for differential symptom expression will be explored, followed by assessment and treatment implications. Finally, suggestions for future directions of study will be discussed.

RACIAL DIFFERENCES IN PSYCHOTIC-LIKE EXPERIENCES:

A STUDY OF SCHIZOTYPY IN

AFRICAN-AMERICANS AND CAUCASIANS

by

Kimberly Anne Adams

Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, College Park in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
2007

Committee: Professor Jack J. Blanchard (Chair)
Professor Suzanne M. Randolph (Dean's Representative)
Professor Harold Sigall
Professor Carl Lejuez
Professor Barry Smith

ACKNOWLEDGMENTS

Sincere thanks to Dr. Jack Blanchard for his constant support and invaluable guidance. I will not forget the lessons he has taught. Thanks to my dedicated RAs, especially Dominique Prophet and Monica Mann, who were instrumental in the completion of this dissertation project.

Heartfelt appreciation to my parents, Dr. Roy Adams and Celia Adams, for their unfailing support throughout my graduate school experience.

TABLE OF CONTENTS

List of Tables.....	v
List of Figures.....	vi
Chapter 1: Introduction.....	1
Race Differences in Schizophrenia.....	1
Assessment and Diagnosis.....	3
Racial Stereotyping/Clinical Error.....	7
Symptom Expression.....	10
Summary.....	17
The Psychometric Detection of Schizotypy.....	18
Psychosis Proneness.....	19
Assessment and Measurement of Psychosis Proneness.....	19
Drawbacks to Current Measures of Psychosis Proneness.....	22
Summary.....	25
Rationale.....	26
Chapter 2: Methodology.....	30
Overview: Maryland Longitudinal Study of Schizotypy.....	30
Participants.....	30
Procedures.....	32
Measures.....	33
Overview: The Current Study.....	38
Participants.....	39
Procedures.....	39
Chapter 3: Results.....	49
Are there race differences in sex, years of education, GAF or parental SES?.....	50
Are the Wisconsin Manual ratings reliable?.....	50
Are there significant race or group differences in clinical diagnoses?.....	52
Are there significant race or group differences in IPDE personality disorder dimensional scores?.....	53
Are there significant race or group differences in psychotic-like experiences as measured by the Wisconsin Manual?.....	54
Are there significant race or group differences in subclinical delusional ideation?	56
Are there relationships between functioning, schizophrenia-spectrum characteristics, and psychotic-like ratings?.....	57
Predictive ability of the Wisconsin Manual to identify lower functioning.....	58

Categorical Classification of Risk.....	59
Chapter 4: Discussion.....	61
Limitations.....	71
Implications and Future Directions.....	73
Appendices.....	86
Appendix A: Revised Social Anhedonia Scale.....	86
Appendix B: Magical Ideation Scale.....	88
Appendix C: Perceptual Aberration Scale.....	89
Appendix D: Infrequency Scale.....	90
Appendix E: SCID: B Module.....	91
Appendix F: International Personality Disorders Examination.....	96
Appendix G: General Assessment of Functioning (GAF).....	99
Appendix H: Wisconsin Manual for Assessing Psychotic-like Experiences.....	100
Appendix I: Individual Summary Score Sheet for Wisconsin Manual.....	108
Appendix J: Master Consensus Score Sheet for Wisconsin Manual.....	109
References.....	110

LIST OF TABLES

1. Demographic Characteristics of African Americans and Caucasians.....	75
2. ICCs for Rater Pairs: Examining Reliability of Raters for Overall Sample and Individual Categories of Psychotic-like Experiences.....	76
3. Clinical Diagnosis of Lifetime Axis I Mood and Substance Use Disorders in African Americans and Caucasians.....	77
4. Clinical Diagnosis of Lifetime Axis I Mood and Substance Use Disorders in Social Anhedonics and Controls.....	78
5. Analysis of Variance for IPDE Schizoid, Schizotypal, and Paranoid Dimensional Scores in African American and Caucasian Social Anhedonics and Controls.....	79
6. Descriptive Statistics and ANOVA Results for Averaged Psychotic-like Experience Ratings in African American and Caucasian Social Anhedonics and Controls.....	80
7. Proportion of African Americans and Caucasians Reporting Subclinical Delusional Ideation.....	81
8. Proportion of Social Anhedonics and Controls Reporting Subclinical Delusional Ideation.....	82
9. Correlations Within Social Anhedonics: IPDE, GAF, and Psychotic-like Experiences.....	83
10. Linear Regression Analysis Within Social Anhedonics Involving GAF, IPDE, and Wisconsin Manual Ratings.....	84

LIST OF FIGURES

1. Group Comparison of Individual and Total Scores on the Wisconsin Manual.....85

CHAPTER 1. INTRODUCTION.

Schizophrenia is a universal disease (Jablensky et al., 1992). However, despite similar rates of the disorder in African Americans and Caucasians, racial disparities have been noted in the diagnosis and expression of schizophrenia in these two groups (Adebimpe, 1981; Arnold et al., 2004; Emsley, 2004; Jones & Gray, 1986; Strakowski et al., 1996). Though studies documenting such findings span several decades, the mechanisms underlying these variations are still poorly understood. Further research is needed to determine which variables influence assessment, etiology and expression of schizophrenia in different racial groups.

RACE DIFFERENCES IN SCHIZOPHRENIA

Research has long indicated that African Americans consistently receive more schizophrenia diagnoses than Caucasians (Adebimpe, 1981; Adebimpe, Chu, Klein, & Lange, 1982; Schwab, 1977). Although a few reports document higher rates of schizophrenia among Caucasians (Jaco, 1960; Pasamanick, 1963), estimates from most early studies indicated that African Americans were 25-75% more likely than their Caucasian counterparts to receive this diagnosis (Faris and Dunham, 1939; Frumkin, 1954; Malzberg, 1963; Wilson & Lantz, 1957). As a result of these findings, there had been speculation that the higher rate of schizophrenia in African Americans might indicate the presence of an underlying cultural factor that predisposes them to develop this disorder (Vitols, Waters, & Keeler, 1963).

The 1970s and 80s began to produce more methodologically sound research suggesting that the assumption of higher rates of schizophrenia in African Americans might be misleading. In a study investigating patients in nine New York State mental

hospitals, Simon, Fleiss, Gurland, Stiller, & Sharpe (1973) found that while 15% of Caucasian patients received affective diagnoses, all of the African American patients were diagnosed w/ schizophrenia despite displaying mood and psychotic symptomatology similar to that of the Caucasian patients.

More recently, Strakowski et al. (1996) investigated the symptom presentation of African American and Caucasian patients recruited for the DSM-IV Field Trial for Schizophrenia and Other Psychotic Disorders. Consistent with prior studies, they found a similar rate and severity of affective disorders in the two groups. These investigators also reported that African American patients exhibited more severe first-rank psychotic symptoms, possibly contributing to the significantly higher rates of schizophrenia diagnoses in African Americans as compared to Caucasians. Strakowski and colleagues (1996) suggested that the severity of the psychotic symptoms in African Americans might have influenced diagnosticians to assign the more serious diagnosis of schizophrenia, when psychotic depression might have been more appropriate in light of the comparable rates of affective disorders in the two groups. However, the authors acknowledge that the presence of more severe psychotic symptoms in African American patients might also be due to actual racial differences, not to diagnostic disparities, and that further research is necessary to clarify the reason for the discrepancy in diagnoses.

Research by Arnold and colleagues (2004) also indicated that African American patients reported more Schneiderian first-rank symptoms (i.e., hallucinations, delusions) of psychosis than Caucasian patients. Despite the excess symptoms in African Americans, however, results from this study revealed comparable rates of schizophrenia in the two groups. The higher rate of psychotic symptoms in African Americans has also

been noted by other investigators (Lawson, Yesavage, & Werner, 1984; Mukherjee, Shukla, Woodle, Rosen, & Olarte 1981; Strakowski et al., 1996) and might partially explain why disproportionately higher schizophrenia diagnoses have consistently been assigned to members of this group. Increased schizophrenia diagnoses in African Americans may appear justified in light of the findings of elevated psychotic symptoms in this group. However, the concern about misdiagnosis arises from evidence indicating that symptoms like hallucinations and delusions are not exclusive to schizophrenia and are also present in mood disorders like psychotic depression and schizoaffective disorder (DSM-IV; APA, 1994; Strakowski et al., 1996). Because similar rates of affective disorders in African Americans and Caucasians have been documented in early (Raskin, Crook, & Herman, 1975; Simon et al., 1973) as well as more recent (Arnold et al., 2004; Strakowski et al., 1996) studies, the disparity in schizophrenia diagnoses is puzzling.

Other researchers have proposed additional hypotheses to explain the inflated schizophrenia diagnoses in African Americans (Adebimpe & Cohen, 1989; Trierweiler, Neighbors, Munday, Thompson, & Gomez, 2000), including challenges in assessment and diagnosis, racial stereotyping and other clinician factors, and racial differences in symptomatology and expression of illness. These factors are addressed below.

Assessment and Diagnosis

Unstructured vs. Structured and Semi- Structured Interviews. At the core of psychopathy research is the clinical interview, during which the interviewer attempts to gain enough information about a patient to render a diagnosis. Until recently, information was elicited through the use of unstructured interviews—unsystematic, inconsistent techniques that did not particularly conform to any scientific standard

(Young, O'Brien, Gutterman, & Cohen, 1987). The drawback to this format is that the content of the questions might vary markedly between clinicians and the resulting diagnoses could be quite different depending on the interviewer. These subjective interviews were severely criticized for eliciting incomplete, misleading and even inaccurate data (Young et al., 1987), and as the quality of clinical research began to suffer the validity of these interviews was questioned.

The increasing concern about unreliable diagnoses and the lack of a systematic format led to the development of the structured and semi-structured interviews. These interviews are superior to unstructured assessments because they reduce subjectivity by providing standardized questions based on empirically validated research. Early studies provided support for the superiority of structured and semi-structured assessment tools over unstructured ones. For example, Welner, Liss, & Robins (1973), investigated the accuracy of subjective clinical impressions compared to systematic methods in determining a diagnosis. They used structured instruments to personally conduct follow-up interviews on a group of African American and Caucasian schizophrenia patients, and later obtained a diagnosis through the use of computerized methods. Before acquiring the computerized diagnoses, two of the researchers (who were also psychiatrists) discussed each case and gave their own clinical impression based on the objective information that they had received about each patient's symptoms. These investigators found that they made significantly more errors in the diagnosis of African American patients when they relied on clinical impressions rather than objective information. Specifically, computerized diagnosis was different from clinical impression in almost twice the number of African American than Caucasian patients (46% vs. 25%, respectively).

Additional evidence (Simon et al., 1973; Raskin, Crook, & Herman, 1975) supported the Liss study, describing significant differences in schizophrenia rates among African Americans and Caucasians that were reduced when standardized assessment tools were utilized.

Despite their undeniable improvement over the unstructured interview, the use of structured and semi-structured interviews does not eliminate diagnostic errors (Young et al., 1987). Though the questions are closely guided by research, the criteria that determine normality and deviance were developed based on data standardized mainly on Caucasians (Rogler, 1993). The use of primarily Caucasian populations in the development of criteria raises the question as to their validity with other racial groups, as the established criteria for mental disorders are based on a European-American interpretation of which behaviors or experiences are deviant and which are normal (Mezzich et al., 1999). Specifically, they might be most effective when used with the population on which they have been standardized and less beneficial when used with individuals that differ considerably (i.e., in race, geographic location, or socio-economic status) from those in the studied population.

Therefore, the very precision that ensures the superiority of the structured or semi-structured interview to the unstructured interview by reducing subjective clinical impression also overlooks other factors that may significantly influence the respondent (e.g., race). The assigned diagnosis might thus be flawed. Importantly, the DSM-IV (upon which structured interviews in the West are based) cautions researchers and clinicians to take into account any differences in symptom expression or additional factors that may influence a diagnosis of mental disorder; however, in the absence of

information about racial differences in symptomatology accompanying specific disorders, it is unclear how increased diagnostic accuracy can be achieved at this time. Until actual symptom variances by race are incorporated into the DSM-IV, they might not be sufficiently acknowledged during the diagnostic process (Adebimpe, 2004).

The challenge posed by establishing a definition of psychosis based on a limited set of symptoms or behaviors is that extenuating factors that might account for the behavior are not always acknowledged in the diagnostic process (Pote & Orrell, 2002). For example, paranoia can be defined as an abnormal tendency to suspect and mistrust others (Ehrlich, Flexner, Carruth, & Hawkins, 1980). It is considered a prominent symptom of schizophrenia. However, as will be discussed in more detail, a phenomenon called “cultural paranoia” (Grier & Cobbs, 1968) has been documented in the African American community. Cultural paranoia, a less extreme and much more rational version of that seen in psychosis, manifests as a fundamental distrust and unwillingness to confide in individuals of the dominant racial class. It might easily be misinterpreted by an unwary clinician as the more severe, irrational type of paranoia that is seen in schizophrenia (Whaley, 2002). If behavior is not viewed in its appropriate context, and the severity of the symptom is not taken into account, it can incorrectly be considered abnormal and indicative of mental illness. Diagnostic accuracy cannot be achieved if potentially psychotic experiences or symptomatic behaviors are summarily excused; however, the inclusion of social and environmental context in clinical decisions may help determine whether the symptoms displayed are excessive and warrant attention or whether they are appropriate and adaptive responses based on an individual’s prior experiences (Dien, 1997).

Racial Stereotyping/Clinical Error

Negative ethnocentric stereotypes were often applied to non-Caucasians during the 1930s, 40s, 50s, and 60s. Carothers (1951) described African Americans as impulsive, lacking in initiative, and unstable. Other researchers alleged that African American patients were hostile, possessed primitive character, were not psychologically minded, were not motivated during treatment, and were driven by impulse (Sabshin, Diesenhau, & Wilkerson, 1970). Adebimpe (1981) asserts that society's prejudicial sentiments towards African Americans carried into the field of psychology, whose literature reflected the opinion of the public. For example, Prange and Vitols (1962) pointed to a previous era in which African Americans were stereotyped as carefree, jolly individuals, and suggested that carryover effects from that time might have played a role in psychologists' reluctance to assign a less severe diagnosis of depression to them.

More recent information regarding the presence of racial bias in the clinical diagnosis of schizophrenia is mixed. On the one hand, large epidemiological studies in which diagnostic criteria were painstakingly applied indicate that clinicians are careful when assigning these diagnoses. Specifically, in an extension of epidemiological research (Epidemiologic Catchment Area Study; Bourden, Rae, Locke, Narrow, & Reiger, 1992) investigating the prevalence and incidence of psychiatric disorders in the U.S. population, the National Comorbidity Survey (NCS; Kessler et al., 1994) collected comprehensive information including measurements of parental psychopathology, risk factors, family history, childhood environment, social support and interaction, and stressful life events. ECA results pointed to significantly lower rates of schizophrenia in Hispanics than in other racial groups; however, a later study utilizing NCS data and

investigating the lifetime prevalence of nonaffective psychoses as well as related risk factors and diagnostic validity issues (Kendler, Gallagher, Abelson, & Kessler, 1996) found no significant differences between racial or ethnic groups, although they did notice a trend suggesting a higher prevalence of schizophrenia in non-Caucasians. It therefore appears that when careful interviewing using semi-structured instruments was practiced, the mere presence of psychotic symptoms did not ensure a diagnosis; factors such as symptom duration, level of impairment, history of psychiatric hospitalization, and neuroleptic drug treatment were stronger predictors of the presence of severe mental illness. In fact, computer-administered interviews resulted in many more positive diagnoses because of the sole reliance on psychotic symptomatology, and interestingly, there was a low level of agreement between clinician and computer diagnoses. This might be because certain types of psychotic symptomatology—such as delusions, experiences of thought-transfer, and ideas of persecution—are endorsed by many individuals in the general population but may not be indicative of psychosis. While the judgment of psychosis is still somewhat subjective, these results suggest that clinicians may not be overly biased by the presence of psychotic symptoms and are likely to assign these diagnoses judiciously. Thus, the conjecture that the higher rate of schizophrenia in African Americans is due to clinician bias might not be completely accurate and is not supported by epidemiological research.

On the other hand, despite the compelling conclusions from epidemiological studies that clinical diagnoses of schizophrenia are applied judiciously, several smaller-scale independent investigations continue to document higher rates of schizophrenia diagnoses in African Americans (Blow et al., 2004; Neighbors et al., 1999; Simon et al.,

1973; Snowden & Cheung, 1990; Strakowski et al., 1996). This body of research provides evidence that racial disparities in clinical diagnoses of schizophrenia persist despite the use of standardized diagnostic criteria. Though the reasons for these differences are unclear, some researchers point to the possibility of misdiagnosis (Adebimpe, 1981), lack of knowledge of relevant cultural influences (i.e., religiosity, symptoms of distress) on the part of the clinician (Neighbors, Trierweiler, Ford, & Muroff, 2003), and the potent mixture of clinician uncertainty and bias (Smedley, Stith, & Nelson, 2002) as possible explanations.

Regarding the presence of clinician bias in the tendency toward overdiagnosis of schizophrenia in African Americans, findings—predictably—are not conclusive. While little evidence of bias has been found in some studies (Abramowitz & Murray, 1983; Smith, 1980), others document problems with neglect, under- and over-estimation of pathology, and misdiagnosis (Adebimpe, 1981; Westermeyer, 1987; Whaley, 1997). It is also possible that these results point more towards underpathologizing or minimizing pathology in less marginalized groups, rather than negative clinician biases towards a particular group (Lopez, 1989). Because racial differences in diagnosis endure despite the use of structured and semi-structured instruments (Neighbors et al., 1999; Loring & Powell, 1988), it becomes more difficult to attribute overdiagnosis simply to the lack of utilization of DSM criteria. Whaley (2004) suggests that the strict application of criteria is necessary but may not be enough to effectively eliminate clinician bias or unintended error during interviews. More systematic research investigating other potential explanations for the continued race differences would provide much needed insight into this puzzling phenomenon.

Symptom Expression

Paranoia. Paranoia is one of the most common symptoms of schizophrenia, and even merits its own subtype (paranoid schizophrenia; DSM-IV; APA, 1994). However, research demonstrates that in African Americans, the mere presence of paranoia is not indicative of psychosis. “Cultural paranoia” (Grier & Cobbs, 1968) is a widely-observed phenomenon in African Americans and refers to wariness and suspiciousness towards Caucasian society. It arose from experiences of racism and oppression and is considered a normative, healthy, and adaptive response in African Americans because it is necessary for survival (Jones & Gray, 1986; Whaley, 1997). In the treatment setting, reluctance to disclose information could be the result of factors other than the presence of psychosis, such as discomfort with the therapist or the treatment process in general (Westermeyer, 1987). Several studies assessing cultural differences have noted a reluctance in African Americans to disclose information (Jones & Gray, 1986; Trierweiler et al., 2000). Clinicians in the dominant social class who are unaware of the inherent mistrust they might arouse in individuals who have been mistreated or discriminated against by persons of that dominant class could conceivably misinterpret hesitancy to reveal personal information as paranoia (Whaley, 2002). This self-protective reluctance to confide, manifested by affective control and disinterest in developing rapport with the therapist, may resemble additional symptoms of schizophrenia such as blunted affect and interpersonal dysfunction (Trierweiler & Stricker, 1998). The presence of these behaviors might unduly influence the assessment process by incorrectly steering the investigator towards an incorrect diagnosis of schizophrenia in African Americans (Whaley, 1997). A distinction between normative subclinical paranoia and the severe

and debilitating paranoia observed in schizophrenia is necessary for accurate diagnosis (Flaskerud & Hu, 1992).

Hallucinations and Delusions. According to Slade and Bentall (1988), hallucinations are percept-like experiences that cannot be voluntarily controlled, appear realistic, have the same effect as an actual experience, and occur despite the absence of an appropriate stimulus. Hallucinations are viewed as a fundamental symptom of schizophrenia; additionally, odd or unusual perceptual experiences, as well as magical ideation, have consistently been reported by individuals vulnerable to the development of schizophrenia-spectrum disorders (Chapman, Chapman, Kwapil, Eckblad & Zinser, 1994). Although the presence of hallucinations is typically thought to be indicative of schizophrenia (Schneider, 1959), some cross-cultural research indicates that hallucinations might be both common and valued in certain societies (Al-Issa, 1979). Further, Tien (1991) reports that 10-15% of the normal population has experienced at least one hallucinatory experience at some point.

Delusions are fallacious beliefs that arise from the incorrect interpretation of some perception or experience (DSM-IV; APA, 1994). African Americans as a group report more delusions and hallucinations than their Caucasian counterparts, regardless of clinical status. Specifically, researchers have found higher levels of these symptoms in hospitalized African American patients (Arnold et al., 2004; DeHoyos & DeHoyos, 1965; Singer, 1977; Vitols, Waters, & Keeler, 1963), as well as in normal African American community members (Adebimpe, 1981; Schwab, 1977). Vitols, Waters, & Keeler (1963) hypothesize that the increased amount of schizophrenia symptomatology seen in African Americans is indicative of their predisposition to more severe schizophrenia

while others suggest that the content of these delusions and hallucinations be examined closely before diagnosing a disorder, as African Americans often have higher baseline levels of “non-schizophrenic” hallucinations (Adebimpe, 1981; Singer, 1977) that do not resemble the traditional Schneiderian hallucinations fundamental to the schizophrenia diagnosis. Many investigators have concluded that hallucinations, along with other typically psychopathological symptoms such as delusions or beliefs in the paranormal should be considered as part of a continuum (Bentall & Slade, 1985; Eysenck, 1992; Peters, Day, McKenna, & Orbach, 1999; Raine, 1991).

Religiosity. There is some evidence to suggest a relationship between heightened religiosity and schizophrenia-spectrum characteristics. According to Wulff (1997) schizophrenia patients might feel drawn to religious explanations to account for symptoms caused by sensory overload. Considerable research emphasizes the important role religion has played in overall psychological well-being (Claridge & Broks, 1984; Jackson, 1997; White, Joseph, & Neil, 1995); nonetheless, there is also evidence to support a relationship between religiosity and certain schizophrenia-related traits. Joseph & Diduca (2001) used self-report questionnaires to investigate the relationship of schizotypy and religiosity in a sample of 492 teenagers in the risk period for schizophrenia. Their findings were mixed, indicating that in boys, increased religiosity was associated with higher perceptual aberration scores. A negative association was found between magical ideation and religiosity in girls, indicating that more religious girls reported less magical ideation symptomatology. However, in light of research documenting the strong positive correlation between scales measuring the positive schizotypy symptoms of magical ideation and perceptual aberration ($r \geq .65$; Edell,

1995), it is surprising that religiosity demonstrated a significant positive relationship with one but not the other. In another study by Diduca & Joseph (1997), self-report measures indicated a positive association between religiosity and magical ideation in men but not in women. However, the investigators advised that their results be interpreted with caution because of the numerous analyses they conducted with their data. Finally, in another study investigating the responses of 195 university students on measures of religiosity as well as schizotypal traits, Maltby, Garner, Lewis, & Day (2000) found a relationship between extrinsic religiosity, unusual perceptual experiences, paranoia, and suspiciousness in women.

Despite the possibility of an association between religiosity and schizophrenia-spectrum characteristics, many researchers make a clear distinction between religious or mystical experiences (characterized by positive affective states, transcendence, altered perceptual awareness; Stifler, Greer, Sneck, & Dovenmuehle, 1993) and psychosis based on the meaning ascribed to the event, as well as the individual's resulting emotional and behavioral response. For instance, although investigations of U.S. subcultures such as mystics and other highly religious individuals have noted similarities in the content of religious experiences and psychotic episodes (Carr, 2000; Dien & Loewenthal, 1999; Stifler, Greer, Sneck, & Dovenmuehle, 1993), there appears to be fundamental difference between psychosis and mystical experiences. In a study comparing the experiences of 30 psychotic patients, 30 senior members of diverse contemplative/mystical groups, and 30 hospital staff members, Stifler and colleagues (1993) found that the religious experiences of the mentally ill patients and the contemplatives were essentially indistinguishable. Although there were clear differences between the groups in personality dimensions and

maturity, the actual accounts of these unusual experiences were quite similar. Another study (Davies, Griffin, & Vice, 2001) found that a sample of evangelical Christians reported considerably more auditory hallucinations than the comparison controls, but fewer than the psychotic group. While the content of the experiences was similar, evangelicals and patients differed in their affective responses to the hallucinations; namely, evangelicals reported significantly more positive affect following the experiences than the patients. The authors' explanation of this phenomenon was that the experiences of the evangelicals might be viewed as more socially acceptable by the conventional majority, synonymous with religious beliefs, more explainable, and easier to cope with than the experiences of psychotic patients. These investigators acknowledged the possibility that the evangelicals might be the premorbid stage of schizophrenia (as indicated by their positive symptoms) but did not strongly hold the belief because most participants were highly functioning individuals considerably past the age when schizophrenia typically develops. Siddle, Haddock, Tarrier, & Faragher (2002) point out that although the practice of religion appears to be associated with higher rates of religious delusions (Getz, Fleck, & Strakowski, 2001; Peters, Day, McKenna, & Orbach, 1999), religiosity is not necessary for the development of religious delusions. Additionally, some studies indicate that different brain regions are activated in mystical versus delusional states, such that the right temporal lobe is activated during mystical states (Fenwick, 2001) while the left temporal lobe is activated in religious delusions (Puri, Lekh, Nijran, Bagary, & Richardson, 2001).

Research has established that African Americans display significantly higher levels of religiosity and religious involvement than Caucasians (Hunt & Hunt, 2001;

Levin, Taylor, & Chatters, 1995; Taylor, Chatters, Jayakody, & Levin, 2001) and typically place a high level of importance in religion and its accompanying activities. Further, early (Schwab, 1977) as well as more recent (Hunt & Hunt, 2001) research indicates that African Americans are more likely than Caucasians to be members of fundamentalist/Protestant religious denominations. This is significant because fundamentalist Christians are more likely than members of other denominations to be highly influenced by religious doctrines and to believe in the supernatural (Medoff & Skov, 1992). It is therefore not surprising that Schwab (1977) reported significantly higher rates of hallucinations in African American churchgoers than in members of Caucasian churches. Singer (1977) also found that African American schizophrenia patients described significantly more religious hallucinations and delusions than their Caucasian counterparts. However, as documented above, while these experiences have been consistently documented in psychotic patients they have also been noted in religious individuals who display high levels of functioning. Their presence does not therefore invariably indicate mental illness (Goulding, 2004). That being said, the presence of a religious affiliation does not exclude the possibility of mental illness—it merely complicates the process and raises questions that must be considered before a diagnosis can be given.

The underlying reasons for elevated hallucinations and delusions in African Americans are complicated by a number of other factors. Results from the National Comorbidity Survey (Kendler, Gallagher, Abelson, & Kessler, 1996; Kessler et al., 1994) indicated that clinicians were significantly more likely to assign a diagnosis of nonaffective psychosis to individuals from low income households, who live in urban

environments, and who are unemployed. Because African Americans as a group are over-represented in the lower socioeconomic strata and are therefore exposed to the above variables that are established risk factors for psychopathology in general and schizophrenia in particular (CDC, 2004; Jablensky, 1997), it becomes much more difficult to simply ascribe the increased prevalence rates to clinician bias or to a genetic predisposition in African Americans.

Whatever the explanation, recent studies comparing diverse populations of African Americans and Caucasians at various ages continue to provide consistent support for previous research indicating that African Americans experience more Schneiderian first-rank symptoms than Caucasians. In an investigation of this phenomenon, Arnold et al. (2004) conducted a study involving 195 African American and Caucasian patients who were hospitalized for psychosis. To ensure that ethnicity did not influence diagnosis, each patient was interviewed with structured assessment and diagnostic rating tools. Sessions were audio-taped, transcribed and subsequently studied by one African American and one Caucasian investigator. These investigators sanitized the data by eliminating all references to ethnicity and by editing the language of the patients so it would be “ethnically neutral”. Despite the numerous safeguards against possible bias, results still indicated that African Americans, particularly African American men, had significantly more severe psychotic and first-rank symptoms than Caucasian patients. However, rates of schizophrenia were no higher in African Americans than in Caucasians.

Chmielewski, Fernandes, Yee, & Miller (1995), in a study investigating psychosis-proneness in Caucasian, African American, Asian American and Latino

college students, also noted that African Americans received significantly higher scores on scales measuring unconventional beliefs about causation that are not accepted by the dominant culture (magical ideation) and on scales measuring social anhedonia. These symptoms are important because they represent the positive and negative symptom domains commonly noted in schizophrenia, and because they appear to be present in individuals with a vulnerability for developing schizophrenia or its spectrum disorders (Kwapil, 1996).

Summary

African Americans have historically received more schizophrenia diagnoses than their Caucasian counterparts. This phenomenon might occur because of clinician, assessment, or racial factors, variables related to SES and urban dwelling, or it might indicate a true elevated rate of the disorder in this population. Recent studies have replicated previous findings that African Americans report more psychotic symptoms than Caucasians, although a higher occurrence of schizophrenia in the African American population is not supported by epidemiological research.

There are certain inherent problems with the comparison of African American and Caucasian schizophrenia patient samples. One difficulty in this type of research is that African Americans have historically displayed delayed help-seeking behaviors (Emsley, 2004). Thus, although they might present with more severe baseline symptoms than Caucasians, it is unclear whether these elevations occur because of an inherent tendency in this group to experience more severe illness or because their symptoms worsen as a result of treatment avoidance. Other difficulties include complications related to socioeconomic status, such as diet and nutritional status, exposure to various substances

(i.e., tobacco, alcohol), accessibility of medical/psychiatric services, medication compliance, social support, and comorbid medical conditions (Emsley, 2002; Ruiz, 2000). Each of these factors adds to the existing challenges in understanding the role of race in schizophrenia.

Identifying individuals with a vulnerability for developing some form of psychosis is a first step in addressing some of the problems associated with studying groups that have already had access to the medical system. The study of at-risk populations may help to disentangle true symptom manifestation from aspects associated with treatment that might cloud interpretation.

THE PSYCHOMETRIC DETECTION OF SCHIZOTYPY

Increasing interest has been directed towards identifying putative schizotypes, those at risk for eventually developing schizophrenia or a schizophrenia-spectrum disorder (i.e., schizotypy). Recent research (Blanchard, Gangestad, Brown, & Horan, 2000; Chapman, Chapman, Kwapil, Eckblad, & Zinser, 1994; Kwapil, 1996) indicates that the psychometric high-risk method is a useful strategy for distinguishing schizotypes, a latent group of individuals with a genetic liability for schizophrenia, from the general population. The value of psychosis-proneness research lies in its potential to inform researchers about precursors to schizophrenia, as well as possible risk and protective factors. A more complete understanding about the etiology of schizophrenia in different racial groups may eventually allow the prediction of all individuals at increased risk of developing the disorder.

Psychosis Proneness

According to current etiological models of schizophrenia, environmental stressors interact with genetic predisposition to result in the manifestation of some form of the disorder (Andreasen, 1999; Gottesman, 1991; Meehl, 1990). Meehl (1962) proposed that individuals with the genetic liability for schizophrenia, called schizotypes, displayed a certain personality organization (schizotypy) consisting of features like anhedonia, cognitive slippage, ambivalence, and interpersonal aversiveness. Meehl's theory of schizotypy has been supported by several reports demonstrating a familial-genetic relationship between schizophrenia-spectrum personality disorders and schizophrenia such that biological relatives of schizophrenia patients have shown increased rates of these disorders (Gottesman, 1991; Kendler, 1988; Kety, Rosenthal, Wender, & Schulsinger, 1968; Parnas et al., 1993). These findings have been replicated in adoption studies (Kendler, Gruenberg, & Strauss, 1981; Kety et al., 1968) as well as family studies (Kendler et al., 1993). Only about 10% of schizotypes will eventually decompensate into schizophrenia (Meehl, 1962, 1990). Because all schizophrenia-spectrum disorders are assumed to have a common etiology (Kwapil, 2002), identification of at-risk individuals might be an important first step in the treatment process.

Assessment and Measurement of Psychosis Proneness

Self-report questionnaires are utilized to assess the presence of schizotypal traits, and are useful because they allow mass screening at minimal cost. The true-false questionnaires developed by Loren and Jean Chapman (Chapman, Chapman & Raulin, 1976; Chapman, Chapman, & Raulin, 1978; Eckblad & Chapman, 1983) are the primary measures of psychosis-proneness. These measures are based on Meehl's theory of

schizotypy and each was intended to distinguish traits shown to be associated with schizophrenia, including anhedonia, perceptual aberrations, magical ideation, and a lack of conformity to societal norms.

The Revised Physical Anhedonia Scale (Chapman & Chapman, 1978) contains 61 items measuring a deficit in the experience of pleasure derived from taste, touch, sight, and smell. Example items include “Beautiful scenery has been a great delight to me (keyed false)”, and “It has often felt good to massage my muscles when they are tired or sore (keyed false).”

Second, the Social Anhedonia Scale (SocAnh; Chapman et al., 1976) is a true-false scale assessing a deficit in pleasure from interpersonal sources. A revised version of this self-report measure (Revised Social Anhedonia Scale, RSAS; Eckblad, Chapman, Chapman & Mishlove, 1982) excludes items tapping social anxiety and focuses on a schizoid lack of interest in social interaction. This true-false inventory contains 40 items measuring a deficit in interpersonal relationships (e.g., “Having close friends is not as important as many people say” (keyed true), and “If given the choice, I would much rather be with others than be alone” (keyed false).

Third, the Perceptual Aberration Scale (PerAb; Chapman et al., 1978), a 35-item true-false self-report measure, assesses schizophrenia-like distortions and perceptions of one’s own body and surroundings. Example items include “Sometimes I have felt that I could not distinguish my body from other objects around me” (keyed true) and “I have sometimes felt that some part of my body no longer belongs to me” (keyed true).

Fourth, the Magical Ideation Scale (MagicID; Eckblad & Chapman, 1983) is a 30-item true-false instrument that measures unconventional beliefs about causation that

are considered invalid by the dominant culture. Example items include “Sometimes I have felt that I could not distinguish my body from other objects around me” (keyed true) and “I have sometimes felt that some part of my body no longer belongs to me” (keyed true).

Finally, the Impulsive Non-Conformity Scale (Impulsive Non-Con; Chapman et al., 1984) consists of 51 true-false items assessing impulsivity, lack of empathy, and failure to abide by societal norms. Example items include “When I want something, delays are unbearable (keyed true)”, and “I always let people know how I feel about them, even if it hurts them a little” (keyed true).

The results of a major 10-year longitudinal study provide the most compelling evidence regarding the validity of some of these measures as indicators of schizophrenia proneness (Chapman, Chapman, Kwapil, Eckblad & Zinser, 1994). Chapman et al. (1994) administered their measures to a large sample of undergraduates, identified extreme scorers on each scale, and conducted clinical assessments at baseline and at 10-year follow-up. Results indicated that the PhyAnh and Impulsive Non-Con Scales did not predict the development of schizophrenia or psychosis. Perceptual aberrations and magical ideation did not specifically predict schizophrenia but did predict the development of other psychotic disorders and a range of other forms of psychopathology (Chapman et al., 1994). Elevated social anhedonia scores appeared to interact with magical ideation to predict the highest rates of psychosis (21%) compared to the high scorers on other measures and controls (Chapman et al., 1994). Subsequently, Kwapil (1998) assessed individuals from the Chapmans’ longitudinal sample to determine if social anhedonia independently predicts the development of schizophrenia-spectrum

disorders. At follow-up, after statistically controlling for the effects of other psychosis-proneness measures, extreme scorers on the RSAS exceeded the controls on the proportion of subjects diagnosed with a schizophrenia-spectrum personality disorder (24% vs. 1%, respectively), and exceeded controls on dimensional scores of these personality disorders and the rating of highest psychotic-like experience (Kwapil, 1998). In a replication of this result, Gooding Tallent, & Matts (2005) found that at a 5-year follow-up, individuals initially identified as high in social anhedonia reported greater schizophrenia-spectrum diagnoses than controls (15.6% vs. 0%).

Drawbacks to Current Measures of Psychosis Proneness

The current measures of psychosis proneness have enabled schizophrenia researchers to amass a wealth of valuable information regarding risk factors, characteristics, and behaviors associated with the development of schizophrenia-spectrum disorders. However, because these measures were developed and normed using Caucasian samples, the Chapmans have recommended that they not be used with ethnic populations unless separate norms are developed (Chapman & Chapman, 1985). The rapidly-changing and highly diversified cultural climate of the United States calls for research exploring differences in symptomatology between groups, as well as for meaningful norms based on data collected from non-Caucasian populations.

Although psychosis-proneness research including ethnic populations is quite limited, a few researchers have begun to collect mass data with the intent of developing separate norms based on ethnicity. Chmielewski, Fernandes, Yee, & Miller (1995) compared data from a college sample of Caucasian, African American, Asian American, and Latino students who responded to a number of commonly used self-report scales

measuring the presence of psychopathology. Results from every scale indicated clear differences in mean scores by ethnic group, with Caucasians consistently receiving the lowest scores. African Americans scored highest on the physical and social anhedonia scales, while Asian Americans received the highest scores on the magical ideation and perceptual aberration measures. The investigators appropriately did not attempt to provide a definitive explanation for ethnic group differences although they suggested that different ethnic groups may require different norms.

In a similar study assessing psychosis-proneness in college students, Kwapil, Crump, & Pickup (2002) attempted to develop norms for African Americans on the Chapman scales, as well as to determine whether this research method was valid with African American students. They found that African Americans and Caucasians did not differ on scales measuring the presence of magical ideation or perceptual aberrations. However, consistent with Chmielewski et al. (1995), African American males had higher scores than African American females on scales measuring physical and social anhedonia, and African Americans as a group scored higher than their Caucasian counterparts on both of these measures. These results suggest the usefulness of separate norms for certain scales, based on ethnic group. Further, supporting Kwapil's (1998) research, Kwapil, Crump, & Pickup (2002) found that individuals with high social anhedonia scores endorsed more psychotic-like experiences, Axis II schizophrenia-spectrum psychopathology, and negative symptoms than controls, as well as participants with high physical anhedonia, perceptual aberration, or magical ideation scores.

In a study investigating ethnic differences in subclinical paranoia in a sample of African American and Caucasian students at a large southern university, Combs, Penn, &

Fenigstein (2002) found that African Americans received significantly higher scores than Caucasians on the subclinical Paranoia Scale (PS; Fenigstein & Venable, 1992). Specific content analysis indicated that many African Americans strongly endorsed items pointing to mistrust of others and their motives, being on guard with others, and the belief that others are criticizing them. A drawback to this measure is that it was developed and normed using a sample consisting almost entirely of non-Hispanic Caucasians. The authors also note that although the PS was not designed for clinical assessment or diagnosis, it has high internal consistency and a solid link to experimental and analogue studies on paranoia. African American participants also received significantly higher scores than Caucasians on the Personality Assessment Inventory (PAI; Morey, 1991) Paranoia subscale, a highly consistent and internally valid 24-item scale that was normed with a diverse community sample and designed to assess three dimensions of paranoia: hypervigilance, resentment, and persecution. The SCID-II Paranoia subscale (First et al., 1995), assessing personality characteristics associated with schizophrenia (i.e., schizoid, paranoid, and schizotypal traits), was also used in this study and is a valid measure of paranoid beliefs and behaviors. Results from this scale also indicated significantly higher paranoia scores in the African American group. Importantly, findings from the study question the validity of using the same yardstick to measure two quite different populations.

In the aforementioned studies, as with most research comparing African Americans and Caucasians, the findings were restricted to descriptions of mean group differences on the scales. While helpful in establishing the presence of variations by race, the results do not address racial differences in clinical presentation. Specifically,

the actual type, form, and content of psychotic-like symptoms are often overlooked. The available research clearly indicates that African Americans receive higher mean scores on scales assessing the presence of first-rank symptoms of psychosis (Arnold et al., 2004; Chimielewski et al., 1995). However, because these symptom increases do not automatically result in elevated rates of schizophrenia, it can be surmised that they are necessary but not sufficient indicators of psychosis. The difficulty and subjectivity inherent in determining the presence of a severe mental illness based solely on symptomatology has been acknowledged (Kendler, Gallagher, Abelson, & Kessler, 1996); some have therefore suggested (Claridge, 1997; Eysenck, 1992; Goulding, 2004) that psychotic experiences be measured on a continuum in which they certainly might signify illness but are also acknowledged to be present in normal individuals. Support for this suggestion comes from various sources (Barrett & Etheridge, 1992; Morrison, Wells, & Nothard, 2000; Tien, 1991) indicating that between 10 and 37% of the general population report having some type of psychotic experience at one point or another. Ultimately, a closer analysis of the frequency, severity, and content of these experiences could provide valuable information that might further clarify the distinction between “common” and “uncommon” psychotic phenomena.

Summary

The psychosis-proneness research is extremely valuable as a first step in discovering risk and etiological factors associated with the development of schizophrenia-spectrum disorders. A major drawback to this literature concerns the dearth of information regarding the use of assessment tools with ethnic populations. Specifically, it has become increasingly evident that the norm for Caucasian populations

may not be appropriate for African Americans. The reasons for the higher levels of symptoms in African Americans are unknown at this time. Some investigators speculate that the higher scores indicate higher rates of psychopathology in African Americans while others caution that the lack of research in this area and with this population precludes any hypotheses at this time. Another limitation to this body of research concerns the fact that ethnic variations are usually defined in terms of mean differences; actual content of experience has typically been overlooked. Considerable work in this area is still necessary.

RATIONALE

The foregoing review indicated the relationship of race to schizophrenia diagnosis and expression. A replicable finding in schizophrenia research is that more severe psychotic symptoms are consistently present to a greater degree in African Americans than in Caucasians; nonetheless, higher rates of schizophrenia in African Americans have not been reliably documented. Complicating the interpretation of these findings is the fact that studies have typically been conducted with clinical populations. This raises the possibility of confounding variables such as increased symptom severity due to delayed treatment seeking in African Americans, lowered medication compliance, and limited access to treatment. An additional complication centers on the issue of clinician diagnosis. Specifically, some research (Kendler et al., 1996; Kessler et al., 1994) indicates that clinicians are more likely to assign a schizophrenia diagnosis to economically disadvantaged, unemployed urban dwellers. Because African Americans are over-represented in these groups, it is not easy to determine whether rates of severely mentally ill diagnoses are due to race, SES, or a combination of the two.

The psychometric high-risk paradigm is promising for examining racial differences in psychosis proneness. An advantage is that it allows for the comparison of vulnerable individuals without the additional complications posed by access to treatment, medication status, or treatment compliance. Additionally, prior studies have shown that even at baseline, high-risk populations exhibit clear symptoms indicative of psychosis-proneness (i.e., magical ideation, perceptual aberrations, social anhedonia; Chapman et al., 1994; Kwapil, Miller, Zinser, Chapman, & Chapman, 1997). Despite its potential, this paradigm also has its drawbacks. Prior research has been somewhat limited in that Caucasian subjects comprised the majority of the samples and direct comparisons between Caucasians and African Americans were not often made. When race has been examined, raters were not blind to racial group, raising concerns about the possibility of rater bias.

There is a need to expand the literature by going beyond mean group differences in overall psychotic symptoms to investigate the specific characteristics of psychotic-like experiences. The current study makes an important contribution to the available research by evaluating the frequency, severity, and content of psychotic-like experiences in a diverse group of psychosis-prone African American and Caucasian young people. The value of this research lies in its potential to provide a much clearer understanding of the possible precursors to illness as well as its investigation of the emergence of race differences prior to disease onset and independent of confounding variables.

A community sample of African American and Caucasian 18-year-old social anhedonics and controls was used in the current study. A community sample provides a much wider range of information about psychotic experiences than would likely be found

in a sample of undergraduates, as university populations tend to demonstrate less psychopathology (Newman, Moffit, Caspi, & Silva, 1998). Additionally, because social anhedonia appears to be a promising indicator of vulnerability to psychosis (Chapman et al., 1994), cataloging experiences in such a young cohort who already display these symptoms could prove valuable. It is believed that psychotic-like experiences exist along a continuum, such that some symptoms might be considered more severe and deserving of attention than others. The present study adopted a paradigm similar to that utilized in the study by Arnold and colleagues (2004) in that clinical interviews were transcribed so that raters remained blind to racial status, thus reducing the possibility of bias.

Participants in a larger ongoing study on social anhedonia and psychosis proneness were interviewed with semi-structured diagnostic and assessment measures, and each session was videotaped. For the purposes of the current study, clinical interviews from the larger investigation were transcribed, thus ensuring that raters remained unbiased by subject characteristics such as race. Psychotic-like experiences were coded for content, severity, and frequency of occurrence.

It was hypothesized that:

1. Social anhedonics would report more schizophrenia-spectrum characteristics (i.e., dimensional scores for schizotypal, schizoid, and paranoid personality disorder), and psychotic-like symptoms and experiences (i.e., hallucinations, delusions, magical experiences, perceptual aberrations, paranoid thoughts and behaviors) than controls, regardless of race.

2. It was further hypothesized that within social anhedonics, schizophrenia-spectrum characteristics and overall psychotic-like experiences would be more prevalent in African Americans than Caucasians.
3. With regard to the specific content of psychotic-like experiences, it was hypothesized that African American social anhedonics would report more psychotic-like experiences with religious and paranoid themes than Caucasian social anhedonics.

CHAPTER 2. METHODOLOGY

The current study utilized existing data from the Maryland Longitudinal Study of Schizotypy (MLSS), which will be described in detail below.

OVERVIEW: MARYLAND LONGITUDINAL STUDY OF SCHIZOTYPY

A community sample of participants was recruited as part of a larger three-year longitudinal study that is currently being conducted at the University of Maryland at College Park (UMCP), called the Maryland Longitudinal Study of Schizotypy (MLSS). The MLSS was approved by the UMCP Institutional Review Board in February, 2001 and was re-approved in May, 2004 (IRB #00848). A primary goal of this longitudinal study is to examine social anhedonia as an indicator of schizophrenia proneness. The use of a community sample in the MLSS is significant because previous research using the high-risk paradigm has utilized undergraduate student samples which exhibit less psychopathology, contain fewer ethnic minorities, and are more economically advantaged (Newman et al., 1998; Sher & Trull, 1996). The results will therefore be more applicable to the general population, due to the representativeness of the sample.

Participants

Participants for the MLSS were recruited using random-digit-dial methods. The MLSS contracted with a University-affiliated survey research center to identify 18-year-olds within a 20-mile radius of UMCP. This extensive recruitment area allowed the identification of individuals from a variety of urban and suburban settings. Initial screening for participation involved the identification of households with an 18-year-old willing to complete a brief screening questionnaire regarding their feelings and preferences.

Following the identification of 18-year-olds ($N = 3,498$) willing to complete a screening questionnaire, packets were mailed with consent forms, questionnaires, and stamped self-addressed return envelopes. To enhance response rates, monetary incentives were provided (Church, 1993) with partial payment of \$5 included in the initial mailing and the balance of payment sent when completed questionnaires were returned (total compensation, \$15). A total of 2,434 18-year olds completed the mailed screening questionnaire. This response rate (70%) is comparable to other survey assessments utilizing incentives (Church, 1993). The sample providing completed questionnaires was racially diverse: 42% Caucasian; 36.3% African American; 8.9% Asian, 10% Hispanic, 12.1% Other (0.7% refused to identify race). Educational achievement was also broadly represented in the sample.

Extreme scorers on the RSAS comprised the social anhedonia group in the MLSS. Two methods were used to select these individuals. In the first method, which has been established by previous research (e.g., Chapman et al., 1994; Kwapil, 1998), those who fell at least 1.9 standard deviations above the RSAS mean were selected. Significant racial group differences have been identified on the RSAS (Chmielewski et al., 1995; Kelley and Coursey, 1992) with Caucasians having the lowest mean scores, as well as significant gender differences, with men scoring higher than women. Thus, standard deviation cut-offs were determined separately for each gender and Caucasian versus other racial groups (other racial groups were collapsed into one minority category as some racial groups were too small to conduct individual analyses). The second selection method involved using the taxometric method of maximum covariate analysis (MAXCOV-HITMAX; Waller and Meehl, 1998). The taxometric method was utilized in

order to identify individuals who have a high probability of being within a social anhedonia latent class (presumed to be schizotypes; Blanchard, Horan, & Brown, 2001; Horan, Blanchard, Gangestad, & Kwapil, 2004) who may not have met the extreme score criteria using the standard deviation cut-off. This taxometric procedure identified an additional 14 social anhedonic participants not already identified using the standard deviation cut-off (16.3% of the social anhedonia group). Participants with scores less than 0.5 standard deviations above the mean on the Revised Social Anhedonia Scale (RSAS; Eckblad, Chapman, Chapman & Mishlove, 1982), Perceptual Aberration Scale (PerAb; Chapman et al., 1978), or Magical Ideation Scale (MagicID; Eckblad & Chapman, 1983) formed the control group (e.g., Chapman et al., 1994; Kwapil, 1998). These scales will be described in detail shortly. Efforts were made to match available control participants to the socially anhedonic group on gender and race.

Procedures

Following the initial screening, participants were contacted by phone and participation in the study was requested. Ph.D.-level graduate students who received extensive training in each of the diagnostic and assessment instruments utilized in the study conducted each interview. Interviewers were blind to group status (i.e., social anhedonia or control) with the goal of reducing bias towards participants. To eliminate any possible confounds created by substance use, all subjects were asked to refrain from drug or alcohol use in the 24 hours prior to their appointment. Written and oral consent was obtained from study participants upon their arrival on site. Participants then completed a battery of questionnaires, a diagnostic interview, a computerized attention task, and a number of tests assessing mental ability and cognitive status. Upon

completion of the videotaped interview, participants were debriefed as to the nature of the study, were given diagnostic feedback, received clinical referrals when necessary, and earned \$100 for his/her participation. Each session averaged about 3 hours.

Measures

Psychometric Selection of Putative Schizotypes.

Meehl (1962) hypothesized that schizotypes—individuals with the genetic liability for schizophrenia—displayed a certain personality organization (schizotypy) consisting of specific traits that have been noted in schizophrenia patients and their biological relatives. Early identification of these vulnerable individuals is a fundamental goal of schizophrenia research, as it might help illuminate etiological factors involved in the disorder and ultimately allow for aggressive interventions that might reduce the overwhelmingly negative changes that inevitably accompany the decompensation into schizophrenia.

As mentioned in the introduction, an accumulation of research indicates the validity of the psychometric high-risk method in distinguishing schizotypes from the general population. Several true-false questionnaires developed by the Chapmans and their colleagues (Chapman et al., 1976; Chapman, Chapman, & Raulin, 1978; Eckblad & Chapman, 1983) are the psychosis-proneness scales that are most commonly used. These assessment tools are based on Meehl's schizotypy theory and are intended to distinguish traits that appear to be associated with schizophrenia. The social anhedonia and control groups in the MLSS were selected based on their responses to items on the Chapman measures. The scales used to determine group status are described below.

Revised Social Anhedonia Scale (see Appendix A). The Revised Social Anhedonia Scale (RSAS; Eckblad et al., 1982) is a 40-item true-false scale that focuses on a schizoid lack of interest in social interaction and assesses a deficit in pleasure from interpersonal sources. Example items are “Having close friends is not as important as many people say” (keyed true), and “If given the choice, I would much rather be with others than be alone” (keyed false).

The RSAS appears to be a promising indicator of schizotypy. Individuals with schizophrenia (Blanchard et al., 1998) as well as their family members (Kendler et al., 1996) have reported elevated levels of social anhedonia. Cross-sectional (Kendler, Thacker, & Walsh, 1996) and longitudinal (Kwapil, 1998) investigations have demonstrated higher schizophrenia-spectrum dimensional scores in social anhedonics.

The correspondence between high self-reported lack of pleasure from interpersonal sources on the RSAS and interview-based reports of schizoid social withdrawal and isolation support the construct validity of the RSAS (Mishlove and Chapman, 1985). Taxometric analyses conducted on the RSAS (Blanchard et al., 2000, Horan et al., 2004) have found that high scorers comprise a latent class with a low base rate approaching 10%. These findings are consistent with Meehl’s (1962, 1989) proposal of a latent group of individuals in the general population with a vulnerability for developing schizophrenia. Test-retest reliability for the RSAS has been assessed over 90-day and 1-year periods and is high, with stability coefficients between .69 and .79 (Blanchard, Horan, & Brown, 2001; Blanchard et al., 1998). Additionally, the range of coefficient alphas (between .79 and .84; Blanchard et al., 1998; Mishlove & Chapman, 1985) indicate that the RSAS has good internal consistency and reliability.

Magical Ideation Scale (see Appendix B). The Magical Ideation Scale (MagicId; Eckblad & Chapman, 1983) is a 30-item true-false instrument assessing unconventional beliefs about causation that are considered invalid by the dominant culture. Example items include “Sometimes I have felt that I could not distinguish my body from other objects around me” (keyed true) and “I have sometimes felt that strangers were reading my mind” (keyed true). The MagicId was used as a screening measure in the MLSS, although it was not used to select social anhedonics. Subjects with scores less than 0.5 standard deviations above the mean were considered to be at low risk for developing psychosis and comprised the control group.

Longitudinal research (Chapman et al., 1994) points to the validity of this measure as an indicator of psychosis-proneness, as extreme scores on the MagicId predicted the development of general psychosis and a range of other forms of psychopathology. Research also indicates that the MagicId has good convergent and discriminant validity (Bailey, West, Widiger, & Freiman, 1993).

Perceptual Aberration Scale (see Appendix C). The Perceptual Aberration Scale (PerAb; Chapman et al., 1978), a 35-item true-false self-report measure, assesses schizophrenia-like distortions and perceptions of one’s own body and surroundings. Example items include “Sometimes I have felt that I could not distinguish my body from other objects around me” (keyed true) and “I sometimes have to touch myself to make sure I’m still there” (keyed true). The PerAb was also used as a screening measure, although it was not used to select social anhedonics, and individuals with scores below 0.5 were assigned control group status.

As with the MagicId, the PerAb is able to predict psychosis-proneness and other forms of psychopathology (Chapman et al., 1994). High scorers on this scale tend to report more psychotic-like experiences, have higher schizotypal dimensional scores, and have more psychotic relatives than controls (Chapman et al., 1994). The PerAb has also demonstrated good convergent and discriminant validity (Bailey et al., 1993).

Infrequency Scale (see Appendix D). The Infrequency Scale (Chapman et al., 1976) was developed to identify invalid responses. This 13-item scale contains items that are typically answered in one direction. As suggested by Chapman et al. (1976), those who endorsed 3 or more items in the unexpected direction were excluded from the analyses due to the strong probability that they were invalid responders. An example item from this scale is “I sometimes walk with a limp which is the result of a skydiving accident” (keyed true).

Assessment of Axis I Psychopathology, Psychosis

Structured Diagnostic Clinical Interview for DSM-IV Axis I Disorders, Patient Edition, Research Version (SCID-I; First, Gibbon, Spitzer, & Williams, 1996; see Appendix E). This comprehensive semi-structured interview contains several modules assessing a variety of mental disorders, ranging from major depression to obsessive-compulsive disorder. In the MLSS, sections pertaining to the experience of mood disorders, psychosis, and substance use were utilized. The current dissertation project only included items from the B module of the SCID, which focuses specifically on the occurrence of psychotic experiences. Questions from this module are primarily designed to identify the presence of delusions of reference, persecution, and grandeur, experiences of thought withdrawal or insertion, and visual and auditory hallucinations. Sample

questions include, “Has anyone gone out of their way to give you a hard time or try to hurt you?”, “Did you ever feel that someone or something outside yourself was controlling your thoughts or actions against your will?”, and “Did you ever have visions or see things that other people couldn’t see?” Inter-rater reliability for the SCID has been demonstrated, with kappas greater than .60 (Williams et al., 1992).

Assessment of Schizophrenia-Spectrum Personality Disorders

International Personality Disorders Examination (IPDE; Loranger et al., 1995; see Appendix F). The IPDE is a semi-structured interview that measures the presence of schizotypal, schizoid, and paranoid schizophrenia-spectrum personality disorders. The interview assesses a variety of personality traits such as paranoid ideation, quality and number of social relationships, odd or inappropriate appearance, behavior, or mannerisms, magical ideation, and perceptual aberrations. While all of the aforementioned traits are certainly relevant to investigations of psychosis-proneness, only those questions that assessed the presence of psychotic-like experiences including paranoid ideation, odd or magical thoughts or beliefs, and the presence of unusual perceptual experiences were transcribed for the current study. Sample questions include: “Do you ever find hidden meanings or threats in what people say or do?” (paranoid), “Do you believe that you can make some things happen just by thinking about them?” (magical ideation), and “When you look into a mirror, do you ever see your face change before your eyes?” (perceptual aberration). As was discussed earlier, magical ideation and perceptual aberrations are psychotic-like experiences, of which high levels appear to be present in many individuals who eventually decompensate into clinical psychosis (Chapman et al., 1994; Kwapił et al., 1998).

Assessment of Functioning

Global Assessment of Functioning Scale (GAF; APA, 1994; Goldman, Skodol, & Lave, 1992; see Appendix G). As in the MLSS, the current study used the GAF to measure the social, occupational, and psychological functioning of participants in the one-month period prior to the interview. The GAF is a numeric scale from 0 – 100 in which scores at the low end of the continuum indicate marked psychopathology and scores at the high end denote superior functioning. In their 1992 review of social functioning indexes, Goldman and colleagues reported the superiority of the GAF scale in the assessment of general functioning.

Hollingshead and Redlich's (1958) index of occupational and educational achievement (SES) was used to determine parental SES in the current study as well as the MLSS. Psychosis-proneness studies of college students (Chapman et al., 1994) as well as schizophrenia research studies (Bellack et al., 1990) have utilized this index. Though popular, the Hollingshead SES index has been accused of having obsolete occupational codes and high variance (Entwistle & Astone, 1994).

OVERVIEW: THE CURRENT STUDY

The current dissertation project was approved in September, 2005 (IRB Application # 05-0431) and adds to the MLSS by examining racial differences in the expression and content of psychotic-like experiences in social anhedonics and controls, and by including dimensional ratings of psychotic-like experiences that were not coded in the MLSS. Further, the current investigation utilized transcriptions of the clinical interviews which provided race-blind ratings of the psychotic-like experiences.

Participants

A subset of participants from the MLSS, comprised of African Americans and Caucasians, were selected for the current study (N = 155). One African American control participant and one Caucasian socially anhedonic participant received diagnoses of current psychotic disorder and were therefore eliminated from all subsequent analyses, for a total N of 153. Data from these two participants were excluded for two reasons. First, the investigator is interested only in race differences that exist prior to the onset of psychosis and are therefore untainted by confounding variables such as medication compliance or length of illness. Additionally, in order to assign a personality disorder diagnosis, the personality traits must be established before the psychotic symptoms begin and continue after remission of those symptoms (DSM-IV; APA, 1994). Therefore, the paranoid, schizoid, and schizotypal dimensional ratings from the International Personality Disorders Examination could not be assessed in these two participants. As previously stated, exclusion of inappropriate subjects resulted in a total sample of 153 participants, with 76 African Americans (control = 36; social anhedonia = 40) and 77 Caucasians (control = 40; social anhedonia = 37). The dissertation project is focused solely on differences between these two racial groups.

Procedures

The current study utilized transcribed information obtained from the videotaped interviews of the MLSS that related specifically to the presence of psychotic-like experiences.

Transcription. The videotape transcription process in the current study was guided by the methodology adopted by Arnold et al. (2004) in their investigation of

ethnicity and first-rank symptoms in psychotic patients. In order to ensure that the rating of tapes was not biased by subject characteristics, each videotape was transcribed.

Responses to the B module of the SCID (First, Gibbon, Spitzer, & Williams, 1996), as well as IPDE (Loranger et al., 1995) probes addressing paranoid ideation, magical experiences, and perceptual aberrations were identified and transcribed.

Research Assistant Selection. Initially, it was expected that only two undergraduate research assistants (RAs) would be needed to complete all 153 transcriptions. Soon after transcriptions began, however, the amount of time required to transcribe each tape (an average of 2.5 hours) made it evident that several more RAs would be necessary if the project was to be completed in a timely manner. Therefore, a total of eight undergraduate RAs were involved in the transcription phase of the current study. RAs were selected on the basis of their exceptional academic abilities, interest in schizophrenia research, and stated commitment to the project.

RA Training. Before beginning the project, RAs were advised on the difficult and tedious nature of transcription, the necessity of complete confidentiality (i.e., removing videotapes from the lab area was prohibited), and the importance of careful word-for-word recording, even of seemingly irrelevant conversation in the specified sections.

Transcriptions were randomly assigned to RAs based on file number, and when receiving feedback about the difficulty of the transcriptions and the length of tapes (i.e., longer tapes typically indicated more severe pathology), a common response to the investigator's queries was that each RA encountered individuals with a range of experiences. This seems to indicate that no single RA was unduly more burdened than

the next. The PI met regularly with each RA to encourage optimal performance, respond to questions, and gauge progress.

Rating of Psychotic-like Experiences. The Wisconsin Manual for Psychotic-like Experiences (Chapman & Chapman, 1980; see Appendix H) was used to rate the presence and severity of psychotic-like experiences. Psychotic-like experiences are transient and less intense versions of the full-blown symptoms experienced by psychotic patients. Although some have considered psychotic symptoms to be dichotomous (i.e., present or absent), they are increasingly viewed as existing on a continuum. Specifically, some symptoms might be present but not clinically significant because they are supported by subcultural norms while others might be severe, deviant, and indicative of psychosis (Kwapil, Chapman, & Chapman, 1999; Strauss, 1969). Non-psychotic relatives of psychotic patients have also reported psychotic-like experiences and behaviors (Gottesman, 1991; Kety et al., 1968), reinforcing the concept of the existence of these symptoms on a continuum. The manifestation of psychotic-like experiences does not automatically indicate the presence of a psychotic disorder. However, some research has found that the emergence of psychotic-like experiences is often related to the eventual development of psychosis, as many individuals who later decompensated into clinical psychosis reported mild psychotic symptoms in the premorbid phases of the illness (Bleuler, 1950; Chapman et al., 1994; Kraepelin, 1913; Meehl, 1964). Therefore, the measurement of these experiences in at-risk populations could prove useful. In the current study, psychotic-like experiences were recorded and coded using the Wisconsin Manual for Assessing Psychotic and Psychotic-like Experiences (Chapman & Chapman, 1980).

The Wisconsin Manual investigates the presence and severity of psychotic symptoms and psychotic-like experiences. The deviancy of an experience is determined after consideration of additional factors like frequency, duration, degree of implausibility, belief in the experience, and impairment of functioning (Kwapil, Chapman, & Chapman, 1999). Seven classes of experiences are rated by the manual: thought transmission, thought withdrawal, auditory experiences/hallucinations, aberrant beliefs, passivity experiences, visual experiences/hallucinations, and olfactory experiences. Each of the occurrences is viewed as part of a continuum, with floridly psychotic symptoms at one extreme and normal experiences at the other. The most deviant experiences (e.g., thought transmission, thought withdrawal, auditory experiences, passivity experiences) are considered psychotic or Schneiderian first-rank symptoms of schizophrenia. The less deviant experiences (e.g., ideas of reference) are considered psychotic-like and are consistent with DSM-IV symptoms of schizotypy.

Deviancy ratings for each class of experience are determined after considering seven factors: 1) experience frequency, 2) experience duration, 3) experience content and implausibility, 4) degree of belief in and explanation for experience, 5) circumstances when experience occurred (e.g., does the experience occur only in hypnogogic states? is it influenced by others?), 6) preoccupation with experience, and 7) degree of subcultural support for the experience. Rating scales ranging from 1 to 11 are utilized, where a score of 1 indicates a normal experience, scores of 2-5 indicate psychotic-like experiences, and scores of 6-11 indicate psychotic symptoms. When several psychotic-like experiences within a single category are endorsed, the experience that earned the highest rating is scored for that class. If an experience fits into more than one category, it is assigned the

category for which it would receive the highest, most deviant score (Kwapil, Chapman, & Chapman, 1999).

Chapman & Chapman (1980) suggest two possible ways to determine the highest score in each class of psychotic-like experiences: the raters may either agree on a single number or they may average the values from each rater. In the present study, the average of the two ratings was used.

In addition to the assessment of differences in symptom severity across race, the specific content of psychotic-like experiences was also explored. When appropriate, experiences involving subclinical delusional ideation and accompanied by a Wisconsin Manual rating of two (the lowest score in the psychotic-like continuum indicating deviancy) or higher—were grouped into relevant categories of themes reported in the literature (DSM-IV; APA, 1994; Mohr & Huguelet, 2004), including persecutory/paranoid, referential, religious, and grandiose. This allowed the investigator to better understand the nature of each reported occurrence, separate from its level of severity. Persecutory experiences included those in which the person felt that he was being mocked, followed, tortured, harassed, provoked, or spied on, or that he was singled out as the target of malicious behavior. Referential experiences encompassed any belief that messages from non-personal sources were meant specifically for the individual, while religious experiences referred to implausible ideas involving God, Jesus, angels, devils, demons, spirits or any other supernatural beings, as well as belittlement (i.e., committing the unpardonable sin or engaging in a behavior for which one believes he cannot be forgiven). The experience of grandiosity was assessed by determining the presence of ideas indicating a belief that the individual had special powers that allowed

him direct control over other persons' thoughts or behaviors, or over natural phenomena such as the weather.

Chapman and Chapman (1980) have indicated that the values in the manual may not be appropriate for more diverse samples; however, as more culturally sensitive norms are not yet available, the current ones were used in the present study. Chapman and Chapman (1980) found that, when rating psychotic-like experiences, interrater reliabilities between two pairs of trained raters were 0.78 and 0.81. Similarly, Mishlove and Chapman (1985) reported an interrater reliability of 0.83.

Considerable research from the Chapmans' and colleagues (Allen, Chapman, Chapman, Vuketich, & Frost, 1987; Chapman et al., 1994; Eckblad & Chapman, 1983; Mishlove & Chapman, 1985) indicates that young people previously identified as being at risk for developing some form of psychosis by other assessment measures also reported more frequent and severe psychotic-like symptomatology than controls. Specifically, Mishlove and Chapman (1985) found that psychosis-prone males (as identified by the PerAb or MagicId Scales) whose Social Anhedonia Scale scores fell one standard deviation above the mean received more deviant ratings on psychotic-like experiences. Allen et al. (1987) reported that participants scoring high on measures of perceptual aberrations, non-conformity, and depression had very deviant psychotic-like experiences. These investigators also noted the existence of a positive relationship between psychotic-like experiences and the communication deviance that is common in schizophrenia.

Chapman et al. (1994) and Kwapil et al. (1996) found that the members of their sample who reported the highest levels of deviant psychotic-like experiences were those

who had already been identified as being psychosis-prone by their high scores on the MagicId and Social Anhedonia scales. A 10-year longitudinal study by Chapman and colleagues (1994) further supported the predictive ability of the Wisconsin Manual, indicating that the manual proved able to pinpoint, through the assessment of the deviancy of psychotic-like experiences, those individuals within the vulnerable group who were at an elevated risk of developing psychosis. These investigators found that those who received ratings of 2 or greater at baseline (regarding psychotic-like experiences) exhibited higher rates of clinical psychosis at 10-year follow-up. Additional research by Kwapil, Miller, Zinser, Chapman, & Chapman (1996) reinforced the value of the Wisconsin Manual in predicting psychotic illness when they found higher levels of psychosis in individuals who had originally reported more deviant olfactory, psychotic-like, and schizotypal experiences. It therefore appears that the predictive ability of the Wisconsin Manual makes it a useful tool in the assessment of psychosis-proneness.

Rater Training: Wisconsin Ratings for Psychotic-like Experiences. The current study required that all psychotic-like experiences be rated for severity using the Wisconsin Manual (see Appendix H; Chapman & Chapman, 1980; Kwapil et al., 1999). Practice tapes that were not included in the project were used by the PI and two raters to conduct training and establish initial inter-rater reliability. The PI trained one undergraduate RA and one doctoral graduate student in proper rating techniques for one month prior to study commencement. In an effort to ensure accuracy of ratings between the three raters, training followed general guidelines stipulated by Kwapil (T. Kwapil, personal communication, May 11, 2005), a researcher who has worked closely with the developers of the Wisconsin Manual (Chapman & Chapman, 1980) and who has used

this instrument extensively in his own research (Kwapil, 1998; Kwapil et al., 1999; Kwapil, Crump, & Pickup, 2002).

Training consisted of providing background information regarding general details of the current study (excluding the hypotheses), and a detailed summary of definitions of schizophrenia and its symptoms from the DSM-IV. This was followed by an in-depth review and discussion of the Wisconsin Manual, including definitions, ratings, and examples. At that time, the PI and the two RAs coded 80 examples of psychotic and psychotic-like experiences provided by the Chapmans (Chapman & Chapman, 1980) and 15 additional experiences provided by Kwapil (Kwapil et al., 1999), for a total of 95 psychotic and psychotic-like experiences. The authors' ratings were documented beside the experiences and provided a useful frame of reference throughout the practice sessions as well as during the official ratings requirements.

Subsequently, practice transcripts (i.e., transcripts of participants not included in the current study) were utilized to assist the RAs in gaining further experience and competence in coding the material. After rating practice transcripts, the PI and RAs extensively reviewed every rating and engaged in detailed dialogue about why ratings had or had not been assigned. Discussions about ratings continued until adequate inter-rater reliability ($ICC > .60$; Cicchetti & Sparrow, 1981) was achieved for the practice transcripts. A high level of inter-rater reliability ($ICC = .88$) was attained after comparing every single rating from the three raters on the Individual Summary Score Sheet for Wisconsin Manual (see Appendix I). Specifically, after reading each transcript, raters identified the most deviant psychotic-like experience for each of the 7 domains and were then able to determine the highest individual score and the sum of scores from all

domains as indicated by the total score. Raters also noted the presence/absence and the total reported number of subclinical delusional beliefs (i.e., persecutory/paranoid, referential, religious, grandiose). Thus, every transcript yielded 17 ratings, which were recorded on the Individual Summary Score Sheet. When several psychotic-like experiences within a single category were endorsed, the experience that earned the highest rating was scored for that class. If an experience fit into more than one category, it was assigned the category for which it would receive the highest and therefore most deviant score (Kwapil, Chapman, & Chapman, 1999). All ratings from the 3 raters for all practice transcripts underwent reliability analysis, yielding an overall ICC of .88. Transcript ratings for the current study began immediately afterwards.

The PI rated all 153 transcripts (for a total of 2,601 individual ratings) for the current study, while each RA rated approximately half that number. Specifically, 70 files (1,190 ratings by each rater for a total of 2,380 ratings for which reliability analyses were conducted) were coded by the PI and RA # 1 while the remaining 83 files (1,411 ratings by each rater for a total of 2,822 individual ratings for which reliability analyses were conducted) were coded by the PI and RA # 2. All three raters were blind to race (African American vs. Caucasian) and group (social anhedonic vs. control) status, to reduce the possibility of bias. As previously noted, ratings were first described and summed on a form developed to track the occurrence and severity of the symptoms (Individual Summary Score Sheet for Wisconsin Manual; see Appendix I). Once individual ratings were completed, the mean of every single rating from rater pairs was obtained, recorded on the Master Consensus Score Sheet (see Appendix J), and scanned into a database.

As a graduate research assistant for the MLSS, the PI conducted many of the interviews that were subsequently transcribed and coded. A valid concern was that the PI might be able to identify a subject's race based on a remembered interview. In light of the numerous participants that the PI interviewed, it was unlikely that she would accurately recall the ethnicity of a respondent in addition to the statement(s) that were made and it would be nearly impossible to identify the origin of these extracted excerpts, as they were taken from the context of a larger interview.

CHAPTER 3. RESULTS

The current study sought to investigate the occurrence of race and group differences on a variety of domains. First, chi-square and t-test analyses were used to determine whether the participants differed on basic demographic variables such as gender, years of education, general functioning as measured by the Global Assessment of Functioning Scale (GAF; APA, 1992; Goldman, Skodol, & Lave, 1992), or parental socioeconomic status (SES). Such information would influence the interpretation of all subsequent results. Second, reliability analyses were carried out in order to gauge the consistency of rater pairs when conducting independent ratings of psychotic-like experiences and subclinical delusional ideation. Third, race and group differences in Axis I (mood and substance use) disorders were investigated with the expectation that, as with the demographic variables, understanding clinical differences in Axis I disorders might inform the interpretation of results when assessing psychotic-like experiences. Fourth, International Personality Disorders Examination (IPDE; schizophrenia-spectrum ratings) and Wisconsin Manual (psychotic-like experiences ratings) data were examined for race and group differences using analysis of variance (ANOVA) analyses, and the presence and number of delusional beliefs was examined in participants. Fifth, exploratory analyses that were not originally proposed—specifically, an investigation of correlations between the GAF, IPDE and Wisconsin Manual, correlations between SES and schizoid ratings, chi-square analyses of categorization of risk, and linear regression analyses—were conducted with the goal of providing a more comprehensive picture of the differences that might exist among study participants. It was deemed important to go

beyond the analyses necessary to address the study hypotheses and to investigate other race and group differences that could be informative.

Are there race differences in sex, years of education, GAF or parental SES?

The first step was to demonstrate that any observed race differences were not due to possible confounding factors such as sex, parental SES, or participant years of education (see Table 1). Chi-square analyses indicated that African Americans and Caucasians did not differ in sex, $X^2 = 3.51$, $p > .05$, or educational level, $X^2 = 1.03$, $p > .05$. In terms of general functioning as measured by the GAF, an independent samples t-test indicated that African Americans and Caucasians were comparable, $t(151) = .18$, $p > .05$. However, on average, Caucasian families had significantly higher SES than African American families, $t(147) = 3.89$, $p < .01$.

Are the Wisconsin Manual ratings reliable?

Although obtaining good reliability in the practice sessions reduced the need for discussions about every transcript, reviews and discussions nonetheless occurred randomly throughout this process to guard against rater drift and to maintain high quality ratings. As recommended by Shrout & Fleiss (1979), intraclass correlation coefficients (ICCs) of the full study sample were calculated. The appropriate reliability analyses to use when raters are considered a fixed effect (i.e., not as a random sampling of all possible raters) is a two-way mixed ICC in which every rater rates every relevant target (see Table 2) and which measures the consistency of the ratings. Consistency approaches

to estimating interrater reliability are appropriate with continuous data, as in the current sample.

ICCs were compared to prior findings (i.e., 0.82, Kwapil et al., 1996; 0.83, Mishlove & Chapman, 1985). As with the practice transcripts, reliability analyses for the full sample compared every single rating made by the PI to every rating made by a second coder. Following Chapman and Chapman (1980), reliability analyses were calculated to result in one ICC for all experiences measured by rater pairs. According to Fleiss (1981), when interpreting ICC coefficients, values of 0.75 and above indicate excellent agreement beyond chance, values between 0.40 and 0.74 indicate good to fair agreement beyond chance, and values below 0.40 indicate poor agreement. In the current study, reliability for both rater pairs on practice transcripts completed before study commencement was high, at 0.89 for Pair #1 and 0.84 for Pair # 2.

Based on the metric used by other studies, overall reliability for the current study was high and indicated comparable agreement, at 0.86 for Pair #1 and 0.89 for Pair #2. Obtaining one overall estimate of reliability for rater pairs is certainly appropriate; however, it does not provide information on reliability of raters within the classes of experiences. ICCs were therefore calculated on 6 of the 7 classes of experiences. This has never been reported in published literature and provides an opportunity to examine the reliability for each domain. ICCs were not calculated for thought withdrawal because no experiences were reported in that category.

ICCs for Pair # 1 were quite variable, ranging from very high to very low (i.e., from 1.00 to .17; see Table 2). ICCs for Pair # 2 were considerably better, with the only

unacceptable score at .33 and all others above .60, (see Table 2). Due to vague and limited information regarding how reliability analyses have been conducted in previous studies utilizing the Wisconsin Manual, it was not possible to tell whether these ratings were consistent with those made by other research groups.

Are there significant race or group differences in clinical diagnoses?

Preliminary chi-square analyses were conducted on Axis I disorders in order to examine and compare race and group differences in mood (major depression, dysthymia) and substance use (drug, alcohol) disorders. Despite a lack of *a priori* hypotheses concerning the Axis I disorders, these comparisons allowed us to identify clinical differences to better understand findings obtained in personality disorders and psychotic-like ratings (e.g., are race or group differences in psychotic-like experiences co-occurring with race or group differences in drug use?).

Chi-square analyses of race differences (see Table 3) indicated that Caucasians were significantly more likely to have a substance use disorder (specific to alcohol) than African Americans, $X^2 = 4.73$, $p < .05$. However, there were no differences between African Americans and Caucasians in the rates of mood, $X^2 = 2.53$, $p > .05$, or drug use, $X^2 = 2.84$, $p > .05$, disorders.

Group differences (social anhedonics vs. controls) in Axis I disorders were also examined (see Table 4). Results indicated that social anhedonics were significantly more likely to have a lifetime mood disorder, $X^2 = 19.71$, $p < .01$ than controls. However, social anhedonics were no more likely than controls to have a substance use diagnosis (alcohol: $X^2 = 1.58$, $p > .05$; drug: $X^2 = .81$, $p > .05$).

Are there significant race or group differences in IPDE personality disorder dimensional scores?

Univariate ANOVAs were conducted on each of the schizoid, schizotypal, and paranoid personality dimensions of the IPDE (See Table 5). Within the schizoid dimension, a significant main effect for race was found, $F(1, 149) = 5.45, p < .05$, indicating that, across groups, African Americans reported more schizoid behaviors than Caucasians. A significant main effect of group was also found, $F(1, 149) = 31.56, p < .01$, indicating that social anhedonics reported more schizoid behaviors than controls. The Race X Group interaction was not significant, $F(1, 149) = 1.60, p > .05$.

Within the schizotypal dimension, a significant main effect of group was found, $F(1, 149) = 15.65, p < .01$. This indicates that social anhedonics received significantly higher schizotypal dimensional scores than controls. Neither the main effect of race, $F(1, 149) = 3.35, p > .05$ nor the Race X Group interaction, $F(1, 149) = .00, p > .05$, was significant. This means that regardless of group status, African Americans and Caucasians reported comparable levels of schizotypal behaviors.

Within the paranoid personality dimension, ANOVA results indicated a significant main effect of group, such that social anhedonics reported significantly more paranoid characteristics than controls, $F(1, 149) = 9.92, p < .01$. The main effect of race, $F(1, 149) = 2.66, p > .05$ and the Race X Group, $F(1, 149) = .84, p > .05$, interaction were not significant. Thus, it appears that African Americans and Caucasians report similar rates of paranoid ideation, and that social anhedonics report elevations in paranoid spectrum characteristics, irrespective of race.

The only significant race difference in schizophrenia-spectrum characteristics in the current study involved elevated schizoid dimensional ratings in African Americans. However, African Americans had significantly lower SES than Caucasians and it is possible that their higher schizoid ratings were caused by financial or environmental impediments to socialization. For example, living in dangerous neighborhoods may restrict outdoor ventures and financial constraints may prevent participation in certain extracurricular activities.

In an effort to further explore the race difference in schizoid characteristics, correlations were first computed for the full sample and then separately within African Americans and Caucasians in order to determine the strength of the relationship between SES and schizoid ratings on the IPDE. Correlations were non-significant (all $ps > .05$) for the full study sample, $r = -.11$, within African Americans, $r = -.14$, and within Caucasians, $r = .08$. These findings suggest that elevations in schizoid traits within African Americans are not simply a function of lower SES.

Are there significant race or group differences in psychotic-like experiences as measured by the Wisconsin Manual?

Univariate ANOVAs were conducted on six of the seven classes of psychotic-like experiences in the Wisconsin Manual (thought withdrawal excluded due to lack of reported experiences in that category; see Table 6). Multivariate analysis of variance (MANOVA) has often been implemented to prevent Type I error when studying multiple dependent variables. However, preceding univariate ANOVAs with a MANOVA to test for overall significance is needless and ill-advised as the MANOVA

does not provide additional statistical protection. Further, the two procedures are designed to address different research questions (Huberty & Morris, 1989). Because the ANOVAs carried out after the main MANOVA to identify precisely where differences may lie are identical to running separate ANOVAs, the necessity of conducting two separate procedures to obtain the same results can be questioned (Huberty & Morris, 1989; Share, 1984). It has also been suggested that it is appropriate to conduct multiple ANOVAs when previous studies utilizing the same variables have done so; because this is the case with the Wisconsin Manual psychotic-like experiences, univariate ANOVAs were conducted in the current study.

A main effect for group was found for ‘aberrant’ psychotic-like experiences, $F(1, 149) = 7.46$, $p < .01$ such that social anhedonics reported significantly more aberrant experiences than controls. This finding is consistent with expectations and provides support for the hypothesized role of social anhedonia in the risk for schizophrenia-spectrum disorders. The main effect for race and the Race X Group interaction for the aberrant experience category were not significant (all $ps > .05$).

For the other five domains of psychotic-like experiences assessed, no other race, group, or Race X Group comparisons were significant (all $ps > .05$). This indicates generally equivalent reporting of psychotic-like experiences in African Americans and Caucasians, as well as in social anhedonics and controls. Thus, group differences in psychotic-like symptoms appear specific to aberrant experiences.

It should be noted that a number of the F values were below 1. This indicates extraneous variance, possibly caused by low reliability among the rater pairs in certain categories of psychotic-like experiences.

Are there significant race or group differences in subclinical delusional ideation?

Psychotic-like experiences that had received a Wisconsin Manual ratings score of 2 (indicating mild psychotic-like deviance) or higher were placed into one of four broad categories representing subclinical delusional ideation— paranoid/persecutory, referential, religious, or grandiose. Such classification was beneficial because it allowed us to determine whether the themes of psychotic-like experiences reported by our high-risk sample approximated, to a lesser degree, those commonly reported by schizophrenia patients.

Chi-square analyses indicated a lack of race differences (see Table 7) in the paranoid/persecutory, $X^2 = 1.01$, $p > .05$, referential, $X^2 = .72$, $p > .05$, religious, $X^2 = .56$, $p > .05$, and grandiose, $X^2 = 1.31$, $p > .05$ thematic categories of subclinical delusional ideation. This indicates similar over-arching themes in African Americans and Caucasians when the specific content of psychotic-like experiences is explored.

Regarding group differences in subclinical delusional ideation (see Table 8), social anhedonics were significantly more likely than controls to report paranoid/persecutory beliefs, $X^2 = 13.05$, $p < .01$, but did not report more referential, $X^2 = .00$, $p > .05$, religious, $X^2 = 2.17$, $p > .05$, or grandiose, $X^2 = 1.31$, $p > .05$, delusional beliefs than controls. Thus, group differences appear to be specific to elevations in paranoid or persecutory experiences within social anhedonics, who were no more likely than controls to report other types of subclinical delusional ideation.

Are there relationships between functioning, schizophrenia-spectrum characteristics, and psychotic-like ratings?

Exploratory analyses were conducted to examine the relationship between psychotic-like experiences, clinical ratings of schizophrenia-spectrum personality disorders and general functioning in social anhedonics. Specifically, are clinical ratings of spectrum characteristics and psychotic-like experiences related to poorer overall functioning within this at-risk sample? To address this issue, correlational analyses were conducted within the socially anhedonic group (see Table 9). Analyses were limited to this group because it is comprised of individuals most vulnerable to psychosis.

With regard to general functioning, the GAF was significantly correlated with schizotypal, schizoid, and personality dimensions on the IPDE, such that higher spectrum symptom ratings were related to poorer functioning. Focusing on psychotic-like experiences, only aberrant experiences were significantly correlated with GAF ratings. Thus, individuals with higher levels of aberrant experiences reported poorer functioning. No other Wisconsin Manual ratings of psychotic-like experiences were related to GAF scores (all $ps > .05$).

Turning to the relationship between Wisconsin Manual and IPDE ratings, schizotypal personality traits were significantly positively correlated with all psychotic-like experience categories except for the olfactory domain. Schizoid personality traits were significantly positively correlated with auditory psychotic-like experiences but with no other Wisconsin ratings. Paranoid personality traits demonstrated a significant positive relationship with the aberrant psychotic-like experience category but other correlations with the Wisconsin ratings were non-significant.

Predictive ability of the Wisconsin Manual to identify lower functioning.

The intent of Wisconsin Manual ratings of psychotic-like experiences is to determine if they increase our current ability to assess risk vulnerability. In the current study we utilized labor-intensive transcript ratings of psychotic-like experiences. One question that might arise is whether these Wisconsin ratings provide more subtle and informative data beyond the clinical interview ratings from the IPDE. A linear regression was therefore conducted to ascertain whether the Wisconsin Manual adds significantly to the ability of the IPDE to identify individuals with decreased general functioning (i.e., those at higher risk; see Table 10). As with the above correlational analyses, regression analyses included only social anhedonics, as they were significantly lower in general functioning than controls and comprised the high risk group. With scores on the GAF as the dependent variable, the three IPDE schizophrenia-spectrum characteristics of schizoid, schizotypal, and paranoid personality disorders were entered as independent variables in the first block while the aberrant category of psychotic-like experiences from the Wisconsin Manual was entered on a second step. Results indicated that the block of three IPDE personality dimensions scores accounted for a significant portion of the variance in GAF ratings (39%; $F(3, 73) = 15.24, p < .01$). However, the addition of the aberrant experience category did not result in a statistically significant increment in R^2 , accounting for only 2% of the variance in GAF ratings, $F(1, 72) = 2.41, p > .05$. This means that in the current study, the Wisconsin Manual ratings did not provide any increment in explained variance in functioning beyond traditional clinical ratings of spectrum characteristics.

Categorical Classification of Risk.

Previous research using a subject's single highest score to indicate her level of psychotic-like deviancy demonstrates that those who initially received any individual ratings of 2 or higher on any of the psychotic-like experience scales at baseline had higher rates of psychotic-like experiences, clinical psychosis, schizotypal symptoms, and reduced functioning at follow-up (Allen et al., 1987; Chapman et al., 1984; Chapman et al., 1994; Kwapil, 1998; Kwapil, 1999). Given null results for race and the Race X Group interactions in the current study, we focused on groups (social anhedonics and controls) to try and address the question of whether we see differences in psychotic-like ratings of 2 or higher in high (social anhedonics)- vs. low-risk (controls) participants (see Figure 1). An analysis of the distribution of ratings by group, using the cutoff of 2 or greater indicated that 35 (45.5%) social anhedonics and 24 (31.6%) controls received ratings of 2 or higher on the Wisconsin Manual. Chi-square analyses indicated that this difference was statistically significant, $X^2 = 8.44$, $p < .01$.

Although the single highest score has typically been used to predict risk for future psychosis, Kwapil, Chapman, & Chapman (1999) conducted post-hoc analyses using the sum of the psychotic-like baseline ratings from their 1994 study and found that a total psychotic-like ratings score of 7 or higher—achieved by summing the highest score from each class of experiences to create one total score—also predicted psychosis at follow-up. Despite their findings that 12.7% of the 71 participants that scored at or above this cutoff exhibited psychosis at follow-up, these investigators cautioned that the cutoff score of 7 is still preliminary and thus requires additional validation. In an attempt to replicate the findings that point to the significance of psychotic-like ratings scores of 7 and higher, the

highest score in each class was summed and the total score was used as an indicator of level of deviancy in the present investigation (see Figure 1). Although more social anhedonics (9; 11.7%), than controls (5; 6.6%) received scores of 7 or higher, the difference was not significant ($X^2 = 1.20$, $p > .05$). This null result raises concerns about the generalizability of the Kwapil et al. (1999) suggested cutoff.

CHAPTER 4. DISCUSSION

The primary objectives of the present study were to examine the presence and content of psychotic-like experiences in a community sample of African American and Caucasian at-risk 18-year-olds. Utilizing the psychometric high-risk paradigm to examine racial differences in psychosis-proneness made it possible to compare vulnerable individuals without the additional complications posed by medication status or treatment compliance.

We first conducted general demographic analyses to determine whether there were significant confounding variables that might complicate the interpretation of the results. African Americans and Caucasians were comparable in terms of gender, educational level, and general functioning. However, parental SES of African Americans was significantly lower than that of Caucasians. These findings were expected, as African Americans are typically overrepresented in lower SES categories (Kendler, Gallagher, Abelson, & Kessler, 1996).

Regarding differences in Axis I (mood, substance use) disorders, similar rates of drug use and mood disorders were reported by African Americans and Caucasians although Caucasians were significantly more likely than African Americans to have an alcohol use disorder. These results are consistent with epidemiological research indicating that ethnic minorities (i.e., Hispanics and non-Hispanic blacks) have lower incidences of substance use disorders than do Caucasians (Breslau, Aguilar-Gaxiola, Kendler, Su, Williams, & Kessler, 2006).

Similar rates of alcohol and drug use disorders were found in social anhedonics and controls, but social anhedonics were significantly more likely than controls to be

diagnosed with a mood disorder. This contrasts with results from Gooding, Tallent, & Matts (2005), as well as Kwapil (1998), who found no differences in rates of mood disorder in social anhedonics and controls when comparing the two groups alone. However, findings from the current study are consistent with results from Chapman et al. (1994) and Kwapil et al. (1997), who found that high scorers on the Magical Ideation and Social Anhedonia scales (MagSoc) had higher levels of mood disorder specific to major depression than controls. Thus, an increase in mood disorders within social anhedonics is a replicable finding. This finding may relate to risk for schizophrenia, as considerable research identifies depression as being part of the prodrome for individuals who later develop schizophrenia-spectrum disorders (Hafner, Maurer, Trendler, Heiden, & Schmidt, 2005; Meyer et al., 2005; Yung, Phillips, Yuen, & McGorry, 2004).

Reliability analyses in the form of intraclass correlation coefficients (ICCs) were next conducted to determine the level of agreement between raters. Overall ratings from the Wisconsin Manual indicated high interrater agreement for both rater pairs. This is consistent with prior reports (i.e., 0.82, Kwapil et al., 1996; 0.83, Mishlove & Chapman, 1985). However, ICCs of the individual psychotic-like experiences indicated variable agreement for Pair # 1 and adequate agreement—with the exception of one category—for Pair # 2. Some researchers (Hayes & Hatch, 1999; Stemler, 2004) caution that if a particular behavior or symptom has a low incidence of occurrence in the population, the agreement of raters could be artificially inflated because raters will agree in most cases that the behavior is not present. It is interesting that despite the low base rate of psychotic-like phenomena in this sample, the reliability estimates for some categories were quite low. Simply eyeballing the raw data presented the possibility that low

reliability was likely due to extreme deviations in ratings in a few instances, and that these variations were extreme enough to completely distort the reliability ratings for a particular category of experience. Specifically, one rater interpreted certain phenomena as quite psychotic-like while the other rater overlooked the experience or considered the experience to be normative. As an experiment, three of the most highly discrepant ratings (3.6% of the total ratings for that category) were removed from Pair # 2's data for passivity experiences and the reliability analyses were re-run. The resulting ICC jumped from .33 to .97. This might indicate that although the pairs were quite consistent in their scores, a few outliers could dramatically lower the overall reliability for the pairs.

Regarding study hypotheses, the first hypothesis was that social anhedonics would report more schizophrenia-spectrum characteristics (i.e., IPDE dimensional scores for schizotypal, schizoid, and paranoid personality disorder), and psychotic-like experiences (i.e., hallucinations, delusions, magical experiences, perceptual aberrations, paranoid thoughts and behaviors) than controls, regardless of race. This hypothesis was confirmed by subsequent analyses. Specifically, in terms of IPDE dimensional scores, social anhedonics reported more schizotypal, schizoid, and paranoid characteristics than controls. These results are partially consistent with follow-up data from Kwapił et al. (1997) who found that their Magical Ideation-Social Anhedonia group exceeded controls on the schizotypal and paranoid dimensions, but not on the schizoid dimension. Regarding psychotic-like experiences, social anhedonics reported significantly more paranoid/persecutory delusions and aberrant psychotic-like experiences than controls in the current study. Kwapił (1998) did not find differences in psychotic-like experiences reported by social anhedonics and controls at baseline; results from the current study

deviate from his results in this aspect, as we do note group differences even at baseline assessment. However, the current findings are consistent with follow-up data reported in the Kwapil (1998) study, in which the socially anhedonic group reported more paranoid and psychotic-like experiences than controls. These results from the present investigation are consistent with the conjecture that social anhedonia is an indicator of risk for schizophrenia-spectrum disorders.

Concerning race differences in schizophrenia-spectrum characteristics, it was predicted that African Americans would report more symptoms than Caucasians, given the extensive body of research highlighting elevations of paranoid ideation (Combs, Penn, & Fenigstein, 2002; Whaley, 1997; Whaley, 2004) and schizoid asociality (Chmielewski, Fernandes, Yee, & Miller, 1995; Kwapil, Krump, & Pickup, 2002) in African Americans. Results from the IPDE indicated that schizotypal and paranoid experiences were comparable in African Americans and Caucasians, but that African Americans reported significantly more schizoid behaviors than controls, irrespective of group. The latter finding is consistent with research using self-report measures (Kwapil et al., 2002). It is interesting to note that these results—the only significant race-specific results in the current study except for the finding of increased alcohol use disorders in Caucasians—were obtained from clinical interviews where the interviewer was not blind to racial status. Thus, the role of any possible interviewer bias cannot be determined. However, prior studies using self-report measures (Chmielewski et al., 1995) have found higher levels of social anhedonia in African Americans, suggesting that reports of social withdrawal or preference for less social interactions may not be solely due to bias on the part of the interviewer.

The finding that African Americans reported significantly more schizoid behaviors than controls raised the question of whether these results were confounded by significant race differences in SES, with Caucasians having higher parental SES than African Americans. Correlational analyses were therefore conducted to explore the existence of a relationship between race, schizoid ratings, and SES. Three sets of correlational analyses—conducted with the full sample, within African Americans, and within Caucasians—all resulted in the finding of a non-significant relationship between SES and schizoid ratings, indicating that the elevation of schizoid characteristics in African Americans can be attributed to a genuine racial difference and was not a result of lower SES.

Turning to psychotic-like experiences rated from transcripts, social anhedonics reported significantly more aberrant psychotic-like experiences than controls, as rated by the Wisconsin Manual. Surprisingly, significant group differences were not found on the other domains (psychotic-like experiences specific to thought withdrawal were not reported by either group). Results from the current study are consistent with prior literature indicating that individuals with high social anhedonia scores endorsed more psychotic-like experiences and Axis II schizophrenia- spectrum psychopathology than controls (Kwapil, 1998; Kwapil, Crump, & Pickup, 2002).

Because clinical and non-clinical samples of African Americans have exhibited more severe schizophrenia-spectrum traits than their Caucasian counterparts (Chmielewski, Fernandes, Yee, & Miller, 1995; Combs, Penn, & Fenigstein, 2000), it was expected that these differences would be especially evident in high-risk individuals. Race X Group interactions were universally non-significant, however, and our second

hypothesis that we would find a significant Race X Group interaction in terms of number of psychotic-like experiences was not supported. This null finding is consistent with prior research (Kwapil, Crump, & Pickup, 2002) indicating similar scores in African American social anhedonics and Caucasian social anhedonics on Wisconsin Manual measures of psychotic-like experiences.

Results from the current study suggest that race differences are not found in the reported number of psychotic-like experiences when raters are blind to race. This might indicate that, as epidemiological research has suggested (Kessler et al., 1994), the majority of differences in African Americans and Caucasians can be attributed to factors other than race. Alternatively, it may be the case that because our hypothetically psychosis-prone sample is still quite young, they are still in the premorbid phase of the illness and that race differences may manifest at subsequent follow-up when participants have progressed through the age of risk.

In terms of the specific content of the psychotic-like experiences, we expected that African American social anhedonics would report more psychotic-like experiences with religious and paranoid themes than Caucasian social anhedonics. Such a result would support our third hypothesis. When psychotic-like experiences that had received Wisconsin Manual ratings of 2 or higher were placed into broad thematic categories (i.e., paranoid/persecutory, referential, religious, grandiose) representing subclinical delusional ideation, no significant race differences were noted in the reported number of subclinical delusions. Our finding of comparable rates of these experiences in African American and Caucasian social anhedonics was somewhat surprising given that self report measures of paranoia completed by African American undergraduates (Combs, Penn, & Fenigstein,

2002), community members and psychiatric patients (Cohen, Magai, Yaffee, Walcott-Brown, 2004; Whaley, 2002) indicate elevated paranoia, and that African Americans have long displayed higher levels of religiosity than Caucasians (Hunt & Hunt, 2001; Roof & McKinney, 1987). As stated earlier, findings from the current study indicate that African Americans and Caucasians do not differ in their experience of psychotic-like phenomena. It is difficult to speculate as to why religious and paranoid themes did not dominate the experience of the African American participants, due to the limited body of research investigating race differences in the content of psychotic-like experiences. It might be the case that greater differences will manifest themselves later in the prodrome.

Importantly, despite the absence of race differences in the experience of subclinical delusional ideation, group differences were observed in one thematic category. Specifically, social anhedonics were significantly more likely than controls to report paranoid/persecutory beliefs. Social isolation and disinterest in interpersonal contact has typically been attributed to a fundamental indifference on the part of social anhedonics (Kwapil, 1998; Mishlove & Chapman, 1985). Findings of increased paranoid beliefs in social anhedonics in the current investigation suggest that, far from being indifferent to social contact, social anhedonics may perceive environmental threats where none exist and respond by withdrawal and isolation.

A number of exploratory analyses were conducted in addition to the proposed analyses. First, within social anhedonics, correlational analyses documented the relationship between clinical ratings of overall functioning, schizophrenia-spectrum personality characteristics, and Wisconsin psychotic-like experiences. The purpose of these analyses was to determine whether the interview assessments (IPDE) were related

to the race-blind (Wisconsin Manual) ratings, and to establish the relationship between psychotic-like experiences with general functioning. Results indicated a significant negative relationship between the GAF and aberrant psychotic-like experiences, such that higher levels of aberrant experiences were related to decreased social, occupational, and psychological functioning. All three personality dimensions of the IPDE had a significant negative relationship with the GAF, indicating that individuals with more schizophrenia-spectrum characteristics typically reported reduced functioning as well. These findings are consistent with Chapman et al. (1994) and demonstrate the functional significance of psychotic-like schizophrenia-spectrum characteristics in this at-risk sample.

To further clarify the above correlational findings, a linear regression was conducted within social anhedonics to explore whether the Wisconsin Manual added to the ability of our current measures to predict general functioning in psychosis-prone participants. Poor general functioning has been associated with higher rates of schizophrenia-spectrum disorders (Kwapil, 1998). Although IPDE schizoid, schizotypal, and personality characteristics accounted for a significant amount of the variance in GAF scores, a very minimal amount of variance was accounted for by the aberrant psychotic-like experience category of the Wisconsin Manual. It therefore appears that the Wisconsin Manual is not a useful predictor of general functioning beyond variance already accounted for by traditional clinical ratings of schizophrenia-spectrum characteristics. It would be interesting to note whether these results persist at follow-up, when more severe impairment should be evident.

With regard to the relationship of schizophrenia-spectrum IPDE personality characteristics to the Wisconsin psychotic-like experiences, IPDE schizotypal traits were characterized by elevations across all psychotic-like experiences except for the olfactory domain. These findings are consistent with the formal definition of schizotypal disorder which includes descriptions relating to unusual and aberrant perceptual experiences, various forms of thought disorder, and social anhedonia (DSM-IV; APA, 1994). Additionally, a factor analytic study (Claridge et al., 1996) investigating the factor structure of schizotypal traits noted that four factors—aberrant perceptions and beliefs, cognitive disorganization, introverted anhedonia, and asocial behavior—loaded onto the ‘schizotypy’ construct. Further empirical research (Coleman, Levy, Lezenweger, & Holzman, 1996) documents the relationship between thought disorder, perceptual aberrations, and schizotypy in a study of psychosis proneness, in which participants who received high scores on the Perceptual Aberration Scale (Chapman, Chapman, & Raulin, 1978) also showed elevations in thought disorder.

Schizophrenia-spectrum IPDE schizoid personality traits were positively correlated with auditory psychotic-like experiences. Paranoid personality traits were positively correlated with aberrant psychotic-like experiences. The importance of these correlations lies in their ability to shed light on precisely what it means to have these personality traits. Because of these analyses, we can see that the presence of schizotypal traits seems to be closely related to many types of psychotic-like experiences, while paranoid and schizoid personality traits seem most tied to the experience of aberrant and auditory phenomena. These results support the assumption that the socially anhedonic

group is comprised of the individuals at highest risk; thus, it is logical that they would display more severe symptoms than the control group.

In the next set of exploratory analyses, we investigated whether significantly more social anhedonics than controls received ratings of 2 or higher on the Wisconsin Manual's psychotic-like experiences. Post-hoc analyses in prior studies (Chapman et al., 1994; Kwapil, 1999) indicated that in the baseline sample, participants with scores of 2 or greater later exhibited elevated rates of psychotic-like experiences, clinical psychosis, schizotypal symptoms, and reduced functioning at follow-up. Our results replicated prior research in that as a group, social anhedonics had significantly more psychotic-like ratings of 2 or higher than did controls (45.5% vs. 31.6%). An attempt was also made to determine whether the groups differed in terms of total ratings scores of 7 or higher, a further indication of their vulnerability to future psychosis (Chapman et al., 1994; Kwapil, 1999). There were no significant differences using this threshold. This result raises the question about whether the threshold of 7 that was set by the Chapmans is generalizable. The investigators do warn that the cut-off was preliminary (Kwapil, 1999); perhaps it is necessary to further examine potential cutoff scores in new samples.

In sum, our results reaffirm the relationship of social anhedonia to psychosis-proneness. In the current study, the socially anhedonic group demonstrated elevations compared to the control group in terms of schizophrenia-spectrum characteristics and psychotic-like symptoms. Further, the current study demonstrates a total lack of race differences in the presence and severity of psychotic-like symptoms, thus raising the question of whether race differences found in psychotic patients are indeed the result of an underlying vulnerability in a particular population or whether those variations can be

better explained by extraneous factors. Additionally, null results might indicate a true absence of differences in schizophrenia-spectrum experiences in African Americans and Caucasians and further support epidemiological studies indicating a lack of race differences in the rate of schizophrenia.

The community sample in the present study differs from the undergraduate samples typically utilized in psychosis-proneness research and likely provides a more accurate representation of the general population of psychosis-prone individuals. It has been pointed out that undergraduate samples are generally more high-functioning and might not allow for the most accurate indication of psychopathology in the general population (Newman, Moffitt, Caspi, & Silva, 1998). The current study demonstrates that the psychosis-proneness measures developed by the Chapmans can be implemented effectively with different racial groups. This is encouraging because it means that despite cautions from the Chapmans that their scales should only be used in Caucasian samples until appropriate norms are developed, researchers can confidently employ mass-screening instruments to identify at-risk individuals regardless of racial status as long as separate means are used when determining group status.

Limitations

Some limitations to the current study must be noted. First, our data was derived from an existing study. We were therefore obligated to rely on data that had not been designed to answer our specific study hypotheses. Specifically, ratings from the present investigation were limited to probes from the SCID and IPDE in a context where the intent was to obtain categorical ratings about whether a symptom was present or absent. This may have resulted in less of a need for more detailed probing, and the subtle nature

of psychotic-like experiences being measured in the current study might not have been captured with the assessments that were utilized. Use of more detailed-oriented instruments may have produced a richer pool of information and would have been much more suited to the dimensional rating system assessing psychotic-like experiences on a continuum, as emphasized by the Wisconsin Manual.

Second, the baseline assessment was comprised of a young 18-year-old sample that had not yet moved through the risk period. Therefore, fewer symptoms were observed in this sample than might be obtained at follow-up, and the range of symptoms might have been attenuated. It would be interesting to examine how the Wisconsin ratings predict future functioning and outcome and whether participants with higher scores at baseline experience any negative changes or a worsening of symptoms.

A third limitation concerns the geographic location from which our sample was drawn. Specifically, the metropolitan area surrounding the university campus is racially diverse and multicultural. This sample may therefore not be representative of other, more homogeneous communities. Relatedly, we found no differences in educational level between the African American and Caucasian participants. Considering the elevated high school dropout rates in African Americans compared to Caucasians (Verdugo, 2002), findings of comparable education rates in both racial groups in the current study might suggest that our sample of African Americans is unique and may therefore limit the generalizability of our results to other African Americans.

Fourth, our sample of social anhedonics received significantly more diagnoses of lifetime incidence of major depression than the controls. This raises the question of whether we were studying true social anhedonics or whether we identified depressed

individuals who have been shown to demonstrate anhedonic characteristics during depressive phases (Blanchard, Horan, & Brown, 2001). However, it is important to note that major depressive disorder is part of the schizophrenia prodrome, and has been documented in individuals who later develop schizophrenia (Lezenweger & Loranger, 1989; Meyer et al., 2005; Yung et al., 2004). Further, while 26 (33.8%) of social anhedonics in the present investigation had experienced depression at some point in their life, only 7(9%) were depressed at the time of the interview. Stability of symptoms can only be determined in a longitudinal study; it will be interesting to note the occurrence of major depression at 3-year follow-up.

A final limitation to the current investigation concerns the reliability of ratings for the individual psychotic-like experience categories on the Wisconsin Manual. Extreme outliers compromised the reliability estimates and dropped overall ICCs in many of the individual categories of psychotic-like experiences. Though the excessive difference by rater of certain experiences is troubling, it must be reiterated that these instances occurred rarely. Future studies might emphasize the necessity of total concentration when reading transcripts, and it would be a good idea to restrict the number of transcripts read at one sitting.

Implications and Future Directions

The absence of race differences in psychotic-like experiences in this at-risk population suggests that the psychometric high-risk paradigm is applicable to African Americans as well as Caucasians. As long as appropriate race-determined means are used to distinguish between controls and at-risk groups, it appears that psychosis-proneness measures can accurately identify differences between the races. Additional

research is needed to follow these individuals longitudinally to determine the impact of race differences as psychotic disorders begin to manifest themselves.

It would also be interesting to note the effects of lower SES and the resulting decrease in treatment access in our African American participants, and whether the higher rate of alcohol use increases risk of psychosis in our Caucasian participants. Relatedly, a measure defining culture and assimilation might provide valuable insight into variations in outlook and experience among people that are the same color but differ considerably in their cultural background (e.g., Africans, African-Americans, and West Indians from the Caribbean are all black but live in very different cultures). Finally, future studies should increase the use of blind interviews and ratings to further explore race differences in psychotic-like experiences and other schizophrenia-spectrum characteristics.

Table 1

Demographic Characteristics of African Americans (N = 76) and Caucasians (N = 77)

	African American	Caucasian
Sex (% male)	38.2	53.2
Group (% social anhedonic)	52.6	48.1
Education (%)		
Grade 7-12, not graduated	1.3	0
Graduated high school/GED	19.7	19.5
Part College	78.9	80.5
GAF		
Mean (SD)	81.1 (17.2)	80.6 (14.4)
Hollingshead ^a		
Mean (SD)	38.2 (12.6)	45.9 (11.8)

Note. Hollingshead = parental SES.

^aSES data were not obtained from two African American families.

Table 2

ICCs for Rater Pairs: Examining Reliability of Raters for Overall Sample and Individual Categories of Psychotic-like Experiences

	<u>Pair #1</u>	<u>Pair #2</u>
	ICC	ICC
Overall	.86	.89
<u>Individual Categories</u>		
Aberrant	.37	.60
Auditory	.38	.63
Visual	.59	.69
Thought Disorder	.17	.72
Passivity	1.00	.33
Olfactory	.94	.98
Thought Withdrawal ^a

^aICCs on Thought Withdrawal were not conducted due to the absence of reported experiences in this category

Table 3

Clinical Diagnosis of Lifetime Axis I Mood and Substance Use Disorders in African Americans (N = 76) and Caucasians (N = 77)

	African American N (%)	Caucasian N (%)	χ^2
Mood	11 (14.5)	19 (24.7)	2.53
Substance Use			
Alcohol	5 (6.6)	14 (18.2)	4.73*
Drug	9 (11.8)	17 (22.1)	2.84

*p < .05

Table 4

Clinical Diagnosis of Lifetime Axis I Mood and Substance Use Disorders in Social Anhedonics (N = 77) and Controls (N = 76)

	Social Anhedonic N (%)	Control N (%)	X^2
Mood	26 (33.8)	4 (5.3)	19.71*
Substance Use			
Alcohol	7 (9.1)	12 (15.8)	1.58
Drug	11 (14.3)	15 (19.7)	.81

* $p < .01$.

Table 5

Analysis of Variance for IPDE Schizoid, Schizotypal, and Paranoid Dimensional Scores in African American (AA) and Caucasian (C) Social Anhedonics and Controls

	Social Anhedonia	Control	Race	Group	Race X Group
	M (SD)	M (SD)	F	F	F
Schizoid					
AA	2.17 (2.35)	.44 (.10)	5.45*	31.56**	1.60
C	1.27 (1.66)	.18 (.50)			
Schizotypal					
AA	1.55 (1.66)	.67 (1.29)	3.35	15.65**	.00
C	1.14 (1.62)	.27 (.64)			
Paranoid					
AA	1.45 (1.92)	.92 (1.16)	2.66	9.92**	.84
C	1.27 (2.04)	.25 (.67)			

*p < .05. ** p < .01.

Table 6

Descriptive Statistics and ANOVA Results for Averaged Psychotic-like Experience Ratings in African American (AA) and Caucasian (C) Social Anhedonics (SocAnh) and Controls

Experience	SocAnh	Control	Race	Group	RX G
	M (SD)	M (SD)	F	F	F
Aberrant Experience					
AA	1.56 (1.64)	1.08 (1.53)	2.67	7.46*	.58
C	1.35 (1.63)	.50 (1.18)			
Auditory Experience					
AA	.50 (1.26)	.56 (1.25)	2.09	.18	.56
C	.38 (1.05)	.18 (.64)			
Visual Experience					
AA	.28 (1.04)	.29 (.92)	.07	.35	.50
C	.34 (.91)	.15 (.66)			
Thought transmission					
AA	.26 (.99)	.00 (.00)	.19	1.20	.78
C	.20 (.75)	.18 (1.03)			
Passivity Experience					
AA	.18 (.78)	.21 (.71)	2.59	.07	.37
C	.08 (.49)	.00 (.00)			
Olfactory Experience					
AA	.01 (.08)	.15 (.92)	.38	.21	1.72
C	.07 (.41)	.00 (.00)			
Thought Withdrawal					
AA	.00 (.00)	.00 (.00)	.	.	.
C	.00 (.00)	.00 (.00)			

* p < .05.

Table 7.

Proportion of African Americans (N = 76) and Caucasians (N = 77) Reporting Subclinical Delusional Ideation

	African American N (%)	Caucasian N (%)	X^2
Persecutory/Paranoid	20 (26.3)	15 (19.5)	1.01
Referential	4 (5.3)	2 (2.6)	.72
Religious	5 (6.6)	3 (3.9)	.56
Grandiose	2 (2.6)	5 (6.5)	1.31

Table 8.

Proportion of Social Anhedonics(N = 77) and Controls (N = 76) Reporting Subclinical Delusional Ideation

	Social Anhedonic N (%)	Control N (%)	X^2
Persecutory/Paranoid	27 (35.1)	8 (10.5)	13.05*
Referential	3 (3.9)	3 (3.9)	.00
Religious	2 (2.6)	6 (7.9)	2.17
Grandiose	5 (6.5)	2 (2.6)	1.31

*p < .01

Table 9.

Correlations Within Social Anhedonics: IPDE, GAF, and Psychotic-like Experiences

	GAF	Schizotypal	Schizoid	Paranoid
GAF		-.45**	-.51**	-.45**
Aberrant	-.38**	.50**	.17	.40**
Auditory	-.09	.31**	.35**	.13
Visual	.03	.27*	.14	.08
Thought	-.13	.27*	.09	.21
Passivity	-.14	.29*	.10	.18
Olfactory	-.13	-.04	-.05	-.07

Note. Thought = Thought transmission

* p < .05

** p < .01

Table 10

Linear Regression Analysis Within Social Anhedonics Predicting Global Assessment of Functioning from the IPDE and Wisconsin Manual Ratings of “Aberrant” Psychotic-Like Experiences

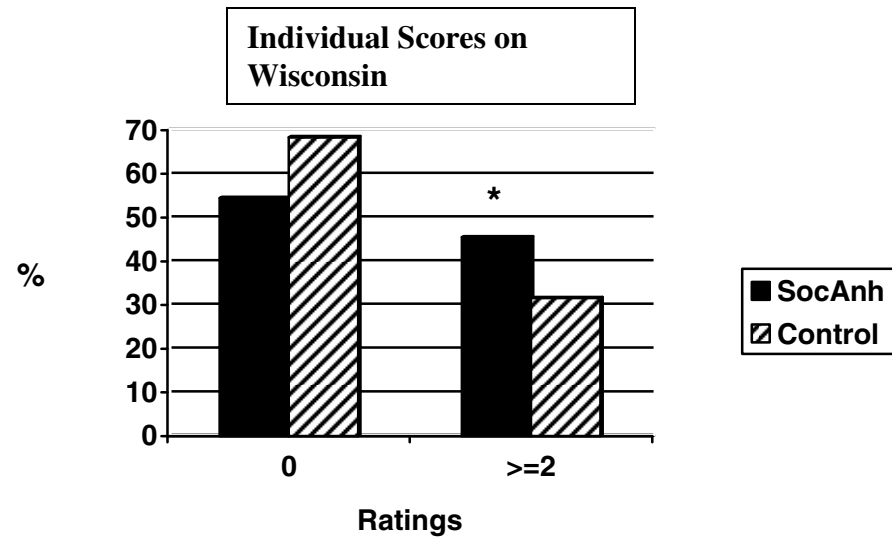
Measure	R^2	ΔR^2	ΔF
Step 1. IPDE Schizotypal Schizoid Paranoid	.39	.39	15.24*
Step 2. Aberrant Experiences	.41	.02	2.41

Note. IPDE = International Personality Disorder Examination.

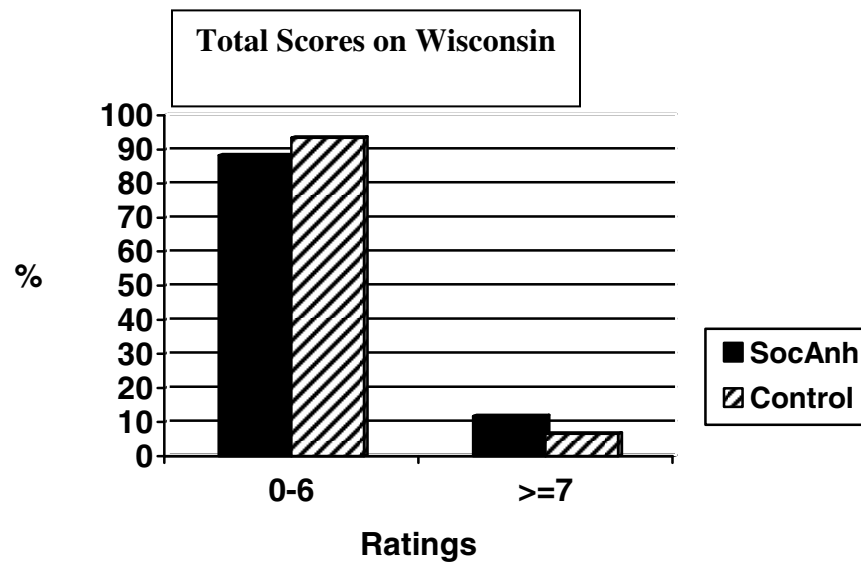
* $p < .01$

Figure 1.

Group Comparison of Individual and Total Scores on the Wisconsin Manual



$*p < .01$



APPENDIX A

Revised Social Anhedonia Scale

1. I feel pleased and gratified as I learn more about the emotional life of my friends.
2. I am usually content to just sit alone, thinking and daydreaming.
3. When someone close to me is depressed, it brings me down also.
4. Although I know I should have affection for certain people, I don't really feel it.
5. My relationships with other people never get very intense.
6. I prefer hobbies and leisure activities that do not involve other people.
7. When others try to tell me about their problems and hang-ups, I usually listen with interest and attention.
8. Although there are things that I enjoy doing by myself, I usually seem to have more fun when I do things with other people.
9. There are things that are more important to me than privacy.
10. Making new friends isn't worth the energy it takes.
11. I never had really close friends in high school.
12. When things are going really good for my close friends, it makes me feel good too.
13. I prefer watching television to going out with other people.
14. A car ride is much more enjoyable if someone is with me.
15. I like to make long distance phone calls to friends and relatives.
16. In many ways, I prefer the company of pets to the company of people.
17. When I am alone, I often resent people telephoning me or knocking on my door.
18. It made me sad to see all my high school friends go their separate ways when high school was over.
19. Having close friends is not as important as many people say.
20. People are usually better off if they stay aloof from emotional involvements with most others.
21. Knowing that I have friends who care about me gives me a sense of security.
22. I sometimes become deeply attached to people I spend a lot of time with.
23. People sometimes think I'm shy when I really just want to be left alone.
24. Just being with friends can make me feel really good.
25. People who try to get to know me better usually give up after awhile.
26. I could be happy living all alone in a cabin in the woods or mountains.
27. When I move to a new city, I feel a strong need to make new friends.
28. I 'm much too independent to really get involved with other people.
29. My emotional responses seem very different from those of other people.
30. When things are bothering me, I like to talk to other people about it.
31. People often expect me to spend more time talking with them than I would like.
32. There are few things more tiring than to have a long, personal discussion with someone.
33. I don't really feel very close to my friends.
34. If given the choice, I would much rather be with others than be alone.
35. I have often found it hard to resist talking to a good friend, even when I have other things to do.

36. I find that people too often assume that their daily activities and opinions will be interesting to me.
37. I attach very little importance to having close friends.
38. Playing with children is a real chore.
39. I have always enjoyed looking at photographs of friends.
40. It's fun to sing with other people.

APPENDIX B

Magical Ideation Scale

1. I almost never dream about things before they happen.
2. I have sometimes felt that strangers were reading my mind.
3. I sometimes have a feeling of gaining or losing energy when certain people look at me or touch me.
4. When introduced to strangers, I rarely wonder whether I have known them before.
5. I have sometimes sensed an evil presence around me, although I could not see it.
6. At times, I have felt that a professor's lecture was meant especially for me.
7. I have wondered whether the spirits of the dead can influence the living.
8. I have worried that people on other planets may be influencing what happens on earth.
9. People often behave so strangely that one wonders if they are part of an experiment.
10. I have sometimes been fearful of stepping on sidewalk cracks.
11. Good luck charms don't work.
12. I have sometimes had the passing thought that strangers are in love with me.
13. Some people can make me aware of them just by thinking about me.
14. I think I could learn to read others' minds if I wanted to.
15. I have never had the feeling that certain thoughts of mine really belonged to someone else.
16. Numbers like 13 and 7 have no special powers.
17. I have felt that there were messages for me in the way things were arranged, like in a store window.
18. I have had the momentary feeling that I might not be human.
19. I have felt that I might cause something to happen just by thinking too much about it.
20. I have never doubted that my dreams are the products of my own mind.
21. Things sometimes seem to be in different places when I get home, even though no one has been there.
22. If reincarnation were true, it would explain some unusual experiences I have had.
23. Horoscopes are right too often for it to be a coincidence.
24. The hand motions that strangers make seem to influence me at times.
25. I have had the momentary feeling that someone's place has been taken by a look-alike.
26. I have noticed sounds on my records that are not there at other times.
27. It is not possible to harm others merely by thinking bad thoughts about them.
28. The government refuses to tell us the truth about flying saucers.
29. I have occasionally had the silly feeling that a TV or radio broadcaster knew I was listening to him.
30. At times I perform certain little rituals to ward off negative influences.

APPENDIX C

Perceptual Aberration Scale

1. I have felt that my body and another person's body were one and the same.
2. Occasionally I have felt as though my body did not exist.
3. My hands or feet have never seemed far away.
4. I can remember when it seemed as though one of my limbs took on an unusual shape.
5. I have felt as though my head or limbs were somehow not my own.
6. I sometimes have had the feeling that my body is abnormal.
7. I have sometimes felt that some part of my body no longer belongs to me.
8. Now and then, when I look in the mirror, my face seems quite different than usual.
9. It has seemed at times as if my body was melting into my surroundings.
10. Sometimes I have had feelings that I am united with an object near me.
11. I have never felt that my arms or legs have momentarily grown in size.
12. Sometimes I feel like everything around me is tilting.
13. Sometimes part of my body has seemed smaller than it usually is.
14. I sometimes have to touch myself to make sure I'm still there.
15. Sometimes people whom I know well begin to look like strangers.
16. I sometimes have had the feeling that some parts of my body are not attached to the same person.
17. I have never had the passing feeling that my arms or legs have become longer than usual.
18. Parts of my body occasionally seem dead or unreal.
19. Sometimes I have had a passing thought that some part of my body was rotting away.
20. My hearing is sometimes so sensitive that ordinary sounds become uncomfortable.
21. Often I have a day when indoor lights seem so bright that they bother my eyes.
22. At times I have wondered if my body was really my own.
23. Sometimes I have felt that I could not distinguish my body from other objects around me.
24. Occasionally it has seemed as if my body had taken on the appearance of another person's body.
25. I have sometimes had the feeling that my body is decaying inside.
26. I have had the momentary feeling that my body has become misshapen.
27. I have sometimes felt confused as to whether my body was really my own.
28. The boundaries of my body always seem clear.
29. I have sometimes had the feeling that one of my arms or legs is disconnected from the rest of my body.
30. For several days at a time I have had such a heightened awareness of sights and sounds that I cannot shut them out.
31. I have had the momentary feeling that the things I touch remain attached to my body.
32. Sometimes when I look at things like tables and chairs, they seem strange.
33. Sometimes I have had the feeling that a part of my body is larger than it usually is.
34. I have felt that something outside my body was a part of my body.
35. Ordinary colors sometimes seem much too bright for me.

APPENDIX D

Infrequency Scale

1. Sometimes when walking down the sidewalk, I have seen children playing.
2. I cannot remember a single occasion when I have ridden on a bus.
3. At times when I was ill or tired, I have felt like going to bed early.
4. I believe that most light bulbs are powered by electricity.
5. On some mornings I didn't get out of bed immediately when I first woke up.
6. Driving from New York to San Francisco is generally faster than flying between these cities.
7. There have been times when I have dialed a telephone number only to find that the line was busy.
8. I find that I often walk with a limp, which is the result of a skydiving accident.
9. I go at least once every two years to visit either northern Scotland or some part of Scandinavia.
10. There have been a number of occasions when people I know have said hello to me.
11. On some occasions I have noticed that some other people are better dressed than myself.
12. I have never combed my hair before going out in the morning.
13. I cannot remember a time when I talked with someone who wore glasses.

APPENDIX E

B Module (SCID-I/P Version 2.0 for DSM-IV Psychotic Symptoms)

Psychotic and Associated Symptoms

THIS MODULE IS FOR CODING PSYCHOTIC AND ASSOCIATED SYMPTOMS THAT HAVE BEEN PRESENT AT ANY POINT IN THE PERSON'S LIFETIME.

FOR EACH PSYCHOTIC SYMPTOM CODED "3", DESCRIBE THE ACTUAL CONTENT AND INDICATE THE PERIOD OF TIME DURING WHICH THE SYMPTOM WAS PRESENT

→ IF ALREADY HAS
ACKNOWLEDGED PSYCHOTIC

SYMPTOMS: You've told me about
(PSYCHOTIC SXs). Now I'd like to
ask you about other experiences like that.

→ IF NO ACKNOWLEDGEMENT OF
PSYCHOTIC SYMPTOMS SO FAR:
Now I'd like to ask you about unusual
experiences that people sometimes have.

Has it ever seemed like people were
talking about you or taking special
notice of you?

IF YES: Were you convinced
They were talking about you or
did you think it might have been
your imagination?

What about receiving special messages
from the TV, radio, or newspaper, or
from the way things were arranged
around you?

What about anyone going out of their
way to give you a hard time, or
trying to hurt you?

DELUSIONS

False personal beliefs based on incorrect
inference about external reality and firmly
sustained in spite of what almost
everyone else believes and in spite of what
Constitutes incontrovertible and obvious proof
or evidence to the contrary. The belief is not
one ordinarily accepted by other members of the
person's culture or subculture. Code overvalued
ideas (unreasonable and sustained beliefs that
are maintained with less than delusional
intensity) as "2".

Delusion of reference, i.e., ? 1 2 3
events, objects, or other people
In the individual's immediate
environment have a particular or
unusual significance.

DESCRIBE:

Persecutory delusion, i.e., ? 1 2 3
the individual (or his or her group)
Is being attacked, harassed, cheated,
persecuted, or conspired against.

DESCRIBE:

Did you ever feel that you were that you were especially important in some way, or that you had special powers to do things that other people Couldn't do?

Grandiose delusion, i.e., ? 1 2 3
content involves exaggerated power, knowledge, or importance, or a special relationship to a deity or famous person.

DESCRIBE:

Did you ever feel that something was very wrong with you physically even though your doctor said nothing was wrong...like you had cancer or Some other terrible disease?

Somatic delusion, i.e., ? 1 2 3
content involves change or disturbance in body appearance or functioning.

DESCRIBE:

Have you ever been convinced that something was very wrong with the way a part or parts of your body looked?

(Did you ever feel that something strange was happening to parts of your body?)

(Did you ever have any unusual religious experiences?)

Other delusions ? 1 2 3

Check if:

___ religious delusions
___ delusions of guilt
___ jealous delusions
___ erotomanic delusions

DESCRIBE:

IF NEVER HAD A DELUSION AND THERE IS NO SUSPICION OF ANY PSYCHOTIC FEATURES, CHECK HERE ___ AND GO TO **AUDITORY HALLUCINATIONS**, * B4.

Did you ever feel that someone or something outside yourself was was controlling your thoughts or actions against your will?

Delusion of being controlled, ? 1 2 3
i.e., feelings, impulses, thoughts or actions are experienced as being Under the control of some external force.

Check if:

___ thought insertion
___ thought withdrawal

DESCRIBE:

(Did you ever feel that certain thoughts that were not your own were put into your head?)

(What about taken out of your head?)

Did you ever feel as if your thoughts were being broadcast out loud so that other people could actually hear what you were thinking?

Thought broadcasting, i.e., ? 1 2 3
the delusion that one's thoughts are audible to others

DESCRIBE:

Did you ever believe that someone could read your mind?

Bizarre delusion, i.e., involving ? 1 2 3
A phenomenon that the individual's subculture would regard as totally implausible (e.g., the person's brain has been removed and replaced with someone else's brain)

How do you explain [CONTENT OF DELUSION]?

AUDITORY HALLUCINATIONS

HALLUCINATIONS (PSYCHOTIC)
A sensory perception that has the compelling sense of reality of a true perception but occurs without external stimulation of the relevant sensory organ. (CODE "2" FOR HALLUCINATIONS THAT ARE SO TRANSIENT AS TO BE WITHOUT DIAGNOSTIC SIGNIFICANCE)

Did you ever hear things that other people couldn't hear, such as noises, or the voices of people whispering or talking? (Were you awake at the time?)

Auditory hallucinations when ? 1 2 3
when fully awake, heard either inside or outside of head

DESCRIBE:

IF YES: What did you hear?
How often did you hear it?

IF VOICES: Did they comment on what you were doing or thinking?

A voice keeping up a running ? 1 2 3
commentary on the individual's Behavior or thoughts as they occur

How many voices did you hear?
Were they talking to each other?

VISUAL HALLUCINATIONS

Did you ever have visions or see things that other people couldn't see? (Were you awake at the time?)

Visual hallucinations ? 1 2 3

DESCRIBE:

NOTE: DISTINGUISH FROM AN ILLUSION, I.E., A MISPERCEPTION OF A REAL EXTERNAL STIMULUS.

What about strange sensations on your body or on your skin?

Tactile hallucinations, e.g., ? 1 2 3
Electricity

DESCRIBE:

(What about smelling or tasting things
that other people couldn't smell or taste?)

Other hallucinations, e.g., ? 1 2 3
gustatory, olfactory

Check if:

___gustatory

___olfactory

DESCRIBE:

OTHER SYMPTOMS

OTHER SYMPTOMS

IF NO SUGGESTION THAT THERE HAVE EVER BEEN PSYCHOTIC SYMPTOMS, CHECK
HERE___ AND SKIP TO MODULE D.

(Let me just stop for a minute while I
take a few notes....)

THE FOLLOWING ITEMS ARE RATED
BASED ON OBSERVATION AND HISTORY
(CONSULT OLD CHARTS, OTHER
OBSERVERS, E.G., FAMILY MEMBERS,
THERAPEUTIC STAFF)

Catatonic behavior:

motoric immobility (i.e., ? 1 2 3
catalepsy or stupor)

excessive motor activity, ? 1 2 3
(i.e., apparently purposeless
agitation not influenced by
external stimuli)

extreme negativism (i.e., ? 1 2 3
apparently motiveless
resistance to instructions
or attempts to be moved)
or mutism

posturing or stereotyped ? 1 2 3
movements

echolalia or echopraxia ? 1 2 3

DESCRIBE:

Grossly disorganized behavior: ? 1 2 3
may range from childlike silliness to
unpredictable agitation. The person may appear
markedly disheveled, may dress in an unusual
manner (e.g., wearing multiple overcoats,
scarves, and gloves on a hot day), display clearly
inappropriate sexual behavior (e.g., public
masturbation), or unpredictable and untriggered
agitation (e.g., shouting or swearing).

DESCRIBE:

Grossly inappropriate affect: ? 1 2 3
affect that is clearly discordant with
the content of speech or ideation,
e.g., smiling while discussing being
persecuted

DESCRIBE:

Disorganized speech: frequent ? 1 2 3
derailment (loosening of associations)
or incoherence; derailment is a pattern
of speech in which the ideas slip off
the track onto another that is completely
unrelated or only obliquely related. The
person may shift the topic idiosyncratically
from one frame of reference to another and
things may be said in juxtaposition that lack
a meaningful relationship. Incoherence is
speech that is essentially incomprehensible
to others because words are joined together
without a logical or meaningful connection.

DESCRIBE:

APPENDIX F
International Personality Disorders Examination (IPDE)

PARANOID

Figure 1. Do you usually keep personal things and your concerns and problems to yourself rather than discuss them with others? (Question 42)

If yes: Why are you reluctant to confide in others?

(Is reluctant to confide in others because of unwarranted fear that the information will be used maliciously against him or her)

Figure 1. Do you ever find yourself not trusting your friends or people you know? (Question 43)

If yes: Why?

Do you ever feel that way without a good reason?

If yes: Tell me about it.

Has this happened with more than one person?

If yes: How many?

(Is preoccupied with unjustified doubts about the loyalty or trustworthiness of friends or associates)

Figure 1. Have you ever held a grudge or taken a long time to forgive someone? (Question 44)

If yes: Tell me about it.

Did you try to avoid or refuse to talk to the person?

How long did you continue to act that way?

Has this ever happened with anyone else?

If yes: With how many people?

Have you ever felt slighted or insulted by someone?

(Persistently bears grudges, i.e., is unforgiving of insults, injuries, or slights)

Figure 1. Has anyone ever attacked your character or reputation? (Question 45)

If yes: Tell me about it.

How did you react when you first found out?

Do other people know about these attacks?

If yes: How did you find out that they do?

If no: Then how did you learn about them?

(Perceives attacks on his or her character or reputation that are not apparent to others and is quick to react angrily or to counterattack)

Figure 1. Do you ever find hidden meanings or threats in what people say or do? (Question 46)

If yes: Give me some examples
(Reads hidden demeaning or threatening meanings into benign remarks or events)

6. Has it been your experience that people often lie to you, or try to use you or take advantage of you? (Question 47)

If yes: Give me some examples.

Has anyone ever deliberately tried to harm you, or make life difficult for you?

If yes: Give me some examples.

Figure 1. Have you ever been concerned about whether a sexual partner was unfaithful to you? (Question 64)

If yes: Tell me about it.

(Has recurrent suspicious, without justification, regarding fidelity of spouse or sexual partner)

MAGICAL IDEATION (Question 66)

Are you more superstitious than most people?

If yes: Does it have an effect on your life?

If yes: Tell me about it.

Do you believe that you can make some things happen just by thinking about them?

If yes: Give me some examples of what you mean.

Do you believe in telepathy or ESP?

If yes: Do you have it or has anyone ever used it to communicate with your or predict something in your life?

If yes: Tell me about it.

Some people say that there is a “6th sense”, a special way to discover what’s going on. Do you think there is such a thing?

If yes: Do you have it or has anyone ever used it to find out things about you?

If yes: Tell me about it.

Do you believe in the supernatural?

If yes: Does it play a role in your life?

If yes: Tell me about it.

Do you believe in charms or omens?

If yes: Do they play a role in your life?

If yes: Tell me about it.

Do you believe in witchcraft, magic, or the occult?

If yes: Do they play a role in your life?

If yes: Tell me about it.

Do you have any ideas that other people might consider strange or unusual?

If yes: Tell me about them.

(Odd beliefs or magical thinking that influences behavior and is inconsistent with subcultural norms)

PERCEPTUAL ABERRATIONS (Question 67)

Do you often mistake objects or shadows for people or noises for voices?

If yes: Give me some examples. (Were you using alcohol or drugs at the time?)

When you look into a mirror do you ever see your face change before your eyes?

If yes: Tell me about it. (Were you using alcohol or drugs at the time?)

Are there times when your body doesn't feel separate from things around you?

If yes: Tell me about it. (Were you using alcohol or drugs at the time?)

Are there times when your arms or legs feel like they're not connected to the rest of you?

If yes: Tell me about it. (Were you using alcohol or drugs at the time?)

Are there times when you feel that your body is not really your own?

If yes: Tell me about it. (Were you using alcohol or drugs at the time?)

When you look at a person do you ever see that person's face change its shape or appearance right there before your eyes?

If yes: Tell me about it. (Were you using alcohol or drugs at the time?)

Are there times when you experience a certain taste or odor for no apparent reason?

If yes: Tell me about it. (Were you using alcohol or drugs at the time?)

Have you ever sensed the presence of a force or person, maybe even a dead person, who was not actually there?

If yes: Tell me about it. (Were you using alcohol or drugs at the time?)

(Unusual perceptual experiences, including bodily illusions)

APPENDIX G

DSM-IV Axis V: Global Assessment of Functioning (GAF) Scale

Consider psychological, social, and occupational functioning on a hypothetical continuum of mental health-illness. So not include impairment in functioning due to physical (or environmental) limitations.

Indicate proper code for the LOWEST level of functioning during the week of POOREST functioning in past month. (Use intermediate level when appropriate, e.g., 45, 68, 72.) Note: Make a rating of 0 if inadequate information.

91-100 Superior functioning in a wide range of activities, life's problems never seem to get out of hand, is sought out by others because of his or her many qualities. No symptoms.

90-81 Absent or minimal symptoms, good functioning in all areas, interested and involved in a wide range of activities, socially effective, generally satisfied with life, no more than everyday problems or concerns.

80-71 If symptoms are present they are transient and expectable reactions to psychosocial stresses; no more than slight impairment in social, occupational, or school functioning.

70-61 Some mild symptoms OR some difficulty in social, occupational, or school functioning, but generally functioning pretty well, has some meaningful interpersonal relationships.

60-51 Moderate symptoms OR any moderate difficulty in social, occupational, or school functioning.

50-41 Serious symptoms OR any serious impairment in social, occupational, or school functioning.

40-31 Some impairment in reality testing or communication OR major impairment in several areas, such as work or school, family relations, judgment, thinking, or mood.

30-21 Behavior is considered influenced by delusions or hallucinations OR serious impairment in communications or judgment OR inability to function in all areas.

20-11 Some danger of hurting self or others OR occasionally fails to maintain minimal personal hygiene OR gross impairment in communication.

10-1 Persistent danger of severely hurting self or others OR persistent inability to maintain minimum personal hygiene OR serious suicidal act with clear expectation of death.

0 Not enough information available to provide GAF.

APPENDIX H

Wisconsin Manual for Assessing Psychotic-Like Experiences

Experiences are rated on an 11-point scale:

11- 6 = Psychotic in decreasing order of severity

5 – 2 = Psychotic-like to slightly deviant

1 = Normal

11	An experience as deviant as that of the most deeply disturbed psychotic patient
10	Very psychotic
9 or 8	Psychotic experiences of average deviancy
7	Moderately psychotic
6	Psychotic, but only marginally so
5	Very psychotic-like (i.e., not psychotic but nearly so)
4	Moderately psychotic-like
3	Fairly psychotic-like
2	Slightly deviant in a psychotic-like direction
1	Normal (that is, a nondeviant experience)

I. Transmission of One's Own Thoughts

	Modal Scores
<p>A. <i>S</i> has actively experienced thoughts leaving his head so that anyone in the area could hear the thoughts through his ears.</p> <p style="padding-left: 40px;">Example: <i>S</i> reports that occasionally he feels the thoughts flying out of his head and that other people hear them.</p>	10
<p>B. <i>S</i> has believed that the experience described in “A” was occurring, even though he did not actively experience the thoughts leaving his head.</p>	8
<p>C. <i>S</i> has actively felt thoughts leave his head so that anyone in the area could receive the thoughts directly by the mind (not through the ears).</p>	9
<p>D. <i>S</i> has believed that the event in “C” was occurring, even though he did not actively experience the thoughts leaving his head.</p> <p style="padding-left: 40px;">Example: <i>S</i> says that sometimes he discovers that his thoughts have radiated out to other peoples' minds</p>	7
<p>E. <i>S</i> has suspected¹ that he has had experience “A” or “C” (or felt it was happening even though he knew better).¹</p> <p style="padding-left: 40px;">Example: <i>S</i> describes an occasion when he felt that his thoughts were flying out all over the room. He adds that he knew at the time that it couldn't be true.</p>	6
<p>F. <i>S</i> had had the experience, with belief, that single individuals have heard his thoughts through their ears without <i>S</i>'s actively trying to achieve thought transmission. (Note: This must be a direct feeling or experience that thoughts are being transmitted rather than merely a conclusion drawn from the statements of others or from coincidence.)</p> <p style="padding-left: 40px;">Example: <i>S</i> believes that when she is in public, strangers whom she encounters an often hear her thoughts through their ears.</p>	8

¹ “Suspected” in this item and all other such items in this manual refers to incomplete belief, or belief with uncertainty, or to the subject's wondering if the event occurred.

- G.** *S* has had the experience, with belief, that single individuals have read his mind against his will, and he found the experience intrusive and objectionable. 8
Example: *S* strains to keep her mind blank because people so frequently read her mind by telepathy.
Example: *S* complains that it is inconvenient that his mother can read his mind.
- H.** *S* has suspected on the basis of direct experience that the event in “F” or “G” occurred (or felt it was happening even though he knew better). 5
Example: As *S* walks down the street, she suspects that passersby can hear her thoughts, and she resents it.
- I.** *S* has concluded that some restricted group of other people, but not just close friends, can, when they are with him, occasionally hear his thoughts or read his thoughts by telepathy or other unknown methods, without his active participation in the thought transference, or that at least one person can do so at a distance. 5
Example: *S* reports that other people whom he meets often read his mind by thought wave.
Example: *S* reports that about three times a month one or another person reads his thoughts at a distance by thought transmission. Most recently this was a friend who knew when he was about to telephone.
- J.** *S* has suspected that he has had experience “I” (or felt it was happening even though he knew better). 3
- K.** *S* has believed that he possesses an ability to transfer his thoughts to another person at will with fair consistency. 5
Example: *S* reports that he can, by thought transmission, influence what a lecturer will say.
Example: A girl reports that when she wants to leave a party with her boyfriend, she can transmit the wish to him by concentrating on it.
- L.** *S* has concluded that people who know him well can read his mind when he is physically with them. 4
Example: *S* says that on dates his girlfriend can tell what he is thinking by picking up his thought waves.
- M.** *S* has suspected that he has had experience “K” or “L” (or felt it was happening even though he knew better). 2
- N.** *S* has concluded or suspected that he has successful ESP experiences as a result of a conscious attempt to achieve them. This means an occasional success, or success better than chance in such attempts. 1
Example: *S* reports that he asked his roommate to guess what he was concentrating on and that the roommate guessed accurately.

II. Passivity Experiences: Made Thoughts, Feelings, Impulses, or Behavior

(Note: The coercion must be of a magical sort. Persuasion and social influence do not qualify. Sub-cultural background must be given special consideration in scoring many of these experiences.)

- A.** *S* reports believing that another person or force other than God, the devil, an angel, or spirits seized control of his body or mind, and used his body or mind to think ideas or to feel feelings or impulses or to act. 10
Example: *S* reports that her father-in-law, who was not present, seized control of her body, and used her body to engage in behavior.
- B.** *S* reports suspecting that the event in experience “A” was occurring (or feeling 6

that the event was happening even though he knew better).

C. *S* reports that another person or force other than God, the devil, an angel, or spirit gave him feelings or thoughts that were not his own or forced him to act or move. 9

Example: *S* relates that a psychic force has pushed him down in bed.

D. *S* reports suspecting that the event in experience “C” was happening (or feeling the event was happening even though he knew better). 5

E. *S* reports having thoughts or feelings or behavior given him by a person or force other than God, the devil, angels, or spirits, but he acknowledges the feelings as his own. 7

Example: *S* reports that many of his feelings are inserted by other people who do so in order to test him concerning those feelings.

F. *S* reports suspecting that the event in experience “E” was happening (or feeling the event was happening even though he knew better). 5

G. *S* reports that the devil or a spirit seized control of his body or mind and used his body or mind to think ideas or feel feelings or impulses or to act. 5-7

Example: *S* reports that an evil spirit seized control of her body to curse her boyfriend. *S* states that she, herself, did not curse, but that the spirit did so.

H. *S* reports suspecting that the event in “G” occurred. 3-5

I. *S* reports believing that the devil gave him thoughts or feelings or forced him to act. 3-5

Example: *S* says that he experiences impulses to hurt other people, but the impulses seem not to be his. Since he does not have such impulses himself, he concludes that Satan gave them to him.

J. *S* reports suspecting that the event in experience “I” occurred (or feeling that it was occurring even though he knew better). 2-4

K. *S* reports believing that God or His angel gave him thoughts or feelings or forced him to act.

1. The thought, feeling, or act is a socially acceptable one. 3-5

Example: *S* states that God controls her behavior and keeps her from making mistakes, such as making unwise purchases.

2. The thought, feeling, or act is a socially unacceptable one. 6-8

Example: *S* states that God made him walk down the street naked.

L. *S* reports suspecting that the event in experience “K” was occurring (or feeling that it occurred even though he knew better). 2-4

M. *S* reports believing that he has thoughts, feelings, impulses, or behavior which are not his own and he does not attribute them to hidden or subconscious parts of himself, but he has no explanation for their origin. 3

Example: *S* reports that he sometimes thinks of rape. Such thoughts cannot possibly be his and he is puzzled about their origin. He rejects the suggestion that they might reflect his subconscious self and expresses uncertainty about whether another person might be giving him the thoughts without his knowledge.

N. *S* reports believing that he has thoughts or feelings or impulses or behavior which seem not to be his own, but he concludes that the experience must be attributable to:

1. Subconscious aspects of himself. 1

Example: *S* wonders where his violent thoughts, which seem unlike him, come from. He attributes them to a part of himself of which he is not aware.

2. The social influences of others or of the communication media. 2

Example: *S* experiences sexual feelings that he is sure are not his. He attributes the experience to the influence of his roommate, who talks about sex.

III. Voice Experiences and Other Auditory Hallucinations

(Do not score single words, such as hearing one's name called, and do not score hypnogogic and hypnopompic experiences except where specified.)

Figure 1. *S* has heard a hallucinatory outer voice that recites a running commentary on his behavior (a blow-by-blow commentary on a sequence of behavior as it occurs) or hears two or more outer voices discussing something.

1. *S* believed for more than a few minutes that this voice was produced by others. 10

2. *S* suspected for more than a few minutes that the voice was produced by others (or felt this even though he knew better). 7

3. *S* has always attributed the origin to himself. 5

B. *S* has heard hallucinatory outer voices other than God, devil, angels, and spirits that speak intelligible phrases or sentences other than above.

1. *S* believed for more than a few minutes that this voice was produced by others. 8

Example: *S* reports that last summer she often heard the voice of a man she had once worked for, and for a while believed he was really speaking to her.

2. *S* suspected for more than a few minutes that the voice was produced by others (or felt this even though he knew better). 6

3. *S* has always attributed the origin to himself. 4

Example: *S* heard an outer voice of a friend at frequent intervals over a 3-month period, but reports always being aware that the experience must be her own imagination.

C. *S* has heard hallucinatory outer voices of God, the devil, angels, or spirits that speak intelligible phrases or sentences.

1. *S* believed for more than a few minutes that the voice was produced by others. 6-8

Example: *S* regularly hears "spirit guides" speaking outside the head, giving advice and information.

2. *S* has suspected for more than a few minutes that the voice was produced by others (or felt this even though he knew better). 4-6

Example: *S* heard outer voices that he thinks may be the devil or may instead be his own imagination.

3. *S* has always attributed the origin to himself. 3-5

Example: *S* hears an outer voice that sounds like God's voice, but *S* knows it couldn't be, and that he must himself be responsible for it.

Figure 1. *S* has heard hallucinatory inner voices, which sound like other people's voices, and which consist of either a running commentary, that is, a blow-by-blow comment on a sequence of behavior as it occurs, or two or more voices discussing, and

1. *S* reports believing that the experience was veridical, that is, was the product of someone else's speech. 8
Example: *S* reports that she hears two deceased relatives discuss her problems, and that they do this to help her.
Example: *S* reports a frequent running commentary which she attributes to an unknown mentor who is instructing her.
2. *S* reports suspecting (or feeling even though he knew better) that the experience was veridical, that is, was the result of someone else's speech. 6
- E. *S* has heard a hallucinatory single inner voice other than his own voice.
 1. *S* believes that it is the produce of the speech of another person other than God, an angel, the devil, or spirits. 6
Example: *S* reports that her deceased grandfather often speaks to her, as an inner voice, in order to give advice.
 2. *S* suspected (or felt, even though he knew better) that the above voice is the product of another person's speech. 5
 3. *S* has heard the voice of God, the devil, or spirits as an inner voice for more than a few minutes, and he believed that the experience was veridical. 4-6
Example: *S* hears admonitions from an inner voice, which she sometimes has believed is God's voice.
 4. *S* suspected (or felt, even though he knew better) that the above experience was veridical. 3-5
- F. *S* has heard an inner voice or voices,² and he attributes the origin of the voice to himself. The message consists of
 1. A running commentary as defined above. 5
Example: *S* often hears himself advise himself as an inner voice while he acts, for a half hour at a time.
 2. An argument or discussion between two voices. 5
Example: *S* hears his two parents argue in his head about his conduct. Father's voice is strict and mother's voice is lenient. *S* attributes the experience to his having acquired conflicting values from his two parents.
Example: *S* hears her "good self" and her "bad self" argue in her head about whether she should study or go to a movie.
 3. Extended comments, that is, longer than 15 minutes, or comments more than six times a day. 5
Example: *S* hears her "voice of conscience," as an inner voice, berate her for about a half hour, every couple of days.
 4. Comments by a voice other than his own. The voice is an alien one although *S* attributes the origin to himself. 5
Example: *S* hears her boss' voice, as an inner voice, berating her for her bad job performance, but she knows that she must be responsible for the voice.
 5. A comment or admonition or a speaking of his thoughts briefly by his own voice. (Note: Most voice-of-conscience experiences belong to her when the voice is internal but is experienced as having an auditory quality. 2
Example: *S* sometimes hears himself say to himself as an inner voice "Don't do that".

- G.** *S* has heard a hallucinatory outer voice but only while resting, and hence the voice must be presumed hypnogogic or hypnopompic, and
1. *S* believed after waking that the voice was the product of someone other than himself. 4
Example: As *S* awakens, she hears the voice of a man speak to her. She interprets the voice as that of a spirit.
 2. *S* suspected after waking that the voice was the product of someone other than himself. 3
- H.** *S* has often heard outer hallucinatory music or distinctive animal sounds or distinctive sounds of other inanimate objects as outer events. Exclude hums, rumbles, roars, squeals, and tones. Thus the sounds of automobile tires squealing would not qualify, but the sound of a locomotive would. 5
Example: *S* often hears music play but in checking with others learns that the music is not objectively present.
- I.** *S* has heard his name called as an outer voice three or more times in a period of an hour or less. 5
- IV. Thought Withdrawal**
- A.** *S* reports the active experience of another person or being other than God, snatching his thoughts away. 10
- B.** *S* reports believing that the above occurred, although he did not actively experience the occurrence of the event. 7
- C.** *S* reports suspecting (or feeling even though he knew better) that the event in experience “B” occurred. 6
Example: *S* reports that his mind often goes blank. He thinks that someone else may be stealing his thoughts, but he is not certain.
- D.** *S* reports believing that God took his thoughts away. 4-6
Example: *S* reports that her mind often goes blank in the middle of conversations or while reading. She attributes the experience to God’s intervention.
Example: *S* reports that when she has unkind thoughts about other people, God takes those thoughts away.
- E.** *S* reports suspecting that God took his thoughts away. 2-4
- F.** *S* reports instantaneous and total loss of thoughts and attributes the loss to inner events or has no explanation. 4

Other Personally Relevant Aberrant Beliefs

To be scored here, a belief must have a personal flavor, that is, be related to oneself. For example, a belief that some people can hypnotize others by a glance of the eyes would not qualify. A belief of *S* that he does this himself would qualify, as would a belief that someone else hypnotizes him in that manner. (Do not rescore the beliefs previously scored unless *S*’s elaboration of the belief would earn him a higher score than he has already received above.)

- A.** *S* reports bizarre delusional beliefs. (Note: A bizarre belief is one which could not possibly be true and is absurd or fantastic, and which receives no direct support from the *S*’s religious or subcultural background.) Following Spitzer and Endicott’s Research Diagnostic Criteria, exclude from bizarre delusions “the elaboration of common implausible ideas or subcultural beliefs, such as communication with God, the devil, ghosts, or ancestors, or being under the influence of curses, spells, voodoo, or hypnosis. 10
Example: *S* explains in detail that when he drives his automobile he projects a

force field around his car which acts as an invisible barrier to ward off other cars and interfere with their handling.

- B.** *S* reports tentatively holding a bizarre delusional belief (or feeling it is true even though he knows better). 7
- C.** *S* reports a delusional belief which is logically consistent with the tenets of his religious or subcultural group, but the belief would be decisively rejected by most members of that group. 4-6
Example: *S* reports that an evil spirit visited her in an attempt to possess her.
- D.** *S* reports tentatively holding a belief of type “C” above (or feeling it is true even though he knows better). 3-5
- E.** *S* reports delusional beliefs which, while not bizarre, receive no support, either direct or indirect, from the individual’s religious or subcultural background, and which represent implausible events. 8
Example: *S* reports that other people radiate an energy out of their eyes to influence him hypnotically.
Example: *S* reports that his friends put thoughts into his head by deliberately dropping key words in conversations. These key words are chosen to influence what he will say in future conversations.
- F.** *S* reports tentatively holding a belief described in “E” (or feeling it is true even though he knows better). 5
Example: *S* worries about whether other people could be figments of her imagination.
- G.** *S* reports having non-bizarre ideas or ideas of reference, or of mistreatment, or of being observed, and these events are not occurring in the *S*’s life. (Note: Judgment her will sometimes be based on the evidence which the *S* adduces for his belief. In most cases, the belief can be scored because *S* reports, himself, that he often gets these ideas and discovers later that they are incorrect.) 4
Example: *S* says that he is always getting the idea that people are saying derogatory things about him, but he finds out later that it isn’t true (Score of 3).
Example: *S* says that sometimes she gets the idea that all her professors are out to flunk her.
Example: *S* reports that for 3 months after arriving in town, he felt that strangers on the street were staring at him (Score of 5).
- H.** Delusional mood. *S* reports the conviction or strong suspicion that something uncanny is happening to him, but he has not formed definite delusional ideas about what is happening. 5
Example: *S* says “there seems to be some larger purpose at work” in many of his interactions with other people, but is unable to say exactly whose or what it is.
Example: *S* says that certain painful life experiences “seem to be arranged—these things don’t just happen,” but is unable to specify the source of the arrangements.

VI. Visual Hallucinations and Other Visual Experiences

- A.** *S* saw hallucinatory objects outside of self, other than while resting or meditating.
- 1.** *S* believed the experience was veridical for more than a few minutes.
- a.** The hallucinatory percepts were very brief. 6
Example: *S* has hallucinated people in brief flashes. He attributes the experience to his psychic power.

<ul style="list-style-type: none"> <ul style="list-style-type: none"> b. The hallucinatory percepts were longer than a moment. 	8
Example: <i>S</i> has trouble driving because, she says, she hallucinates automobiles which are not there.	
Example: <i>S</i> reports that for a half hour she saw hallucinatory Martians visit her in her room. Her friends could not persuade her that the experience was not valid until later in the day.	
2. Same experience as “1” above, but the perception has some subcultural support.	
<ul style="list-style-type: none"> a. Brief 	3
<ul style="list-style-type: none"> b. Not brief 	4
Example: <i>S</i> sees a colored “aura” around people he meets. The interviewer has a blue aura, which is a “good” aura.	
3. Same experience as either “1” or “2” above, but <i>S</i> merely suspected that the experience was veridical (or felt it was even though he knew better) for more than a few minutes.	3
4. Same experience as “1” or 2”, but <i>S</i> believed the experience was veridical no longer than a few minutes, or he never believed it was veridical.	2
Example: <i>S</i> often catches brief glimpses of little animals which she then realizes are not there.	
B. <i>S</i> saw either hallucinatory objects or illusions outside of self in a presumably hypnopompic or hypnagogic state (while resting or meditating) and	
<ul style="list-style-type: none"> 1. <i>S</i> later continued to believe the experience was veridical. 	2-4
Example: <i>S</i> hallucinates people as she awakens and afterwards interprets them as spirits.	
<ul style="list-style-type: none"> 2. <i>S</i> later continued to suspect the experience was veridical. 	2-4
Example: <i>S</i> often sees an old man in her room as she awakens. She is unsure whether the old man is a spirit or is the product of her imagination.	
<ul style="list-style-type: none"> 3. <i>S</i> did not believe or suspect it was veridical later. 	2
Example: <i>S</i> hallucinates people as she awakens but decides, after she is up and around, that she has hallucinated.	
Figure 1. <i>S</i> saw illusions (misinterpretations of stimuli which are physically present) continuously for more than a few moments while not resting or meditating, and	
<ul style="list-style-type: none"> 1. <i>S</i> believed the experience was veridical for longer than a few minutes. 	5
Example: <i>S</i> reports that once when she looked into a mirror her appearance had changed into that of her aged deceased grandmother, and that for more than an hour she believed that her appearance was truly changing.	
<ul style="list-style-type: none"> 2. <i>S</i> suspected the experience was veridical for longer than a few minutes. 	4
<ul style="list-style-type: none"> 3. <i>S</i> did not suspect it was veridical. 	2

APPENDIX I Individual Summary Score Sheet for Wisconsin Manual

File	Participant ID	Rater
□□□	□□□□□	O Kim
	0 0 0 0 0 0	O Monica
	1 0 0 0 0 0	O Dominique
	2 0 0 0 0 0	
	3 0 0 0 0 0	
	4 0 0 0 0 0	
	5 0 0 0 0 0	
	6 0 0 0 0 0	
	7 0 0 0 0 0	
	8 0 0 0 0 0	
	9 0 0 0 0 0	

Instructions: As you read each transcript, describe each potentially psychotic-like experience below. Rate experiences reported in the transcript on a continuum of severity, such that those experiences containing no deviant psychotic-like content will receive the lowest score of “1”, while those that include clearly psychotic-like content will receive the highest score of “11”.

Thought T	Thought W	Auditory	Aberrant	Passivity	Visual	Olfactory
□□	□□	□□	□□	□□	□□	□□
1 0 0	1 0 0	1 0 0	1 0 0	1 0 0	1 0 0	1 0 0
2 0 0	2 0 0	2 0 0	2 0 0	2 0 0	2 0 0	2 0 0
3 0 0	3 0 0	3 0 0	3 0 0	3 0 0	3 0 0	3 0 0
4 0 0	4 0 0	4 0 0	4 0 0	4 0 0	4 0 0	4 0 0
5 0 0	5 0 0	5 0 0	5 0 0	5 0 0	5 0 0	5 0 0
6 0 0	6 0 0	6 0 0	6 0 0	6 0 0	6 0 0	6 0 0
7 0 0	7 0 0	7 0 0	7 0 0	7 0 0	7 0 0	7 0 0
8 0 0	8 0 0	8 0 0	8 0 0	8 0 0	8 0 0	8 0 0
9 0 0	9 0 0	9 0 0	9 0 0	9 0 0	9 0 0	9 0 0

Briefly describe all scorable psychotic-like experiences below.

Highest Single Score
□□
Total Score
□□

Delusional Ideation	Present?	Number
Persecutory/Paranoid	O Yes O No	_____
Referential	O Yes O No	_____
Religious	O Yes O No	_____
Grandiose	O Yes O No	_____

APPENDIX J
Master Consensus Score Sheet for Wisconsin Manual

File	Participant ID	Rater
<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="radio"/> Kim and Monica
	0 0 0 0 0 0	<input type="radio"/> Kim and Dominique
	1 0 0 0 0 0	
	2 0 0 0 0 0	
	3 0 0 0 0 0	
	4 0 0 0 0 0	
	5 0 0 0 0 0	
	6 0 0 0 0 0	
	7 0 0 0 0 0	
	8 0 0 0 0 0	
	9 0 0 0 0 0	

<u>Experience</u>	<u>Mean Score (Mean of 2 Raters)</u>
Thought Transmission	<input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
Thought Withdrawal	<input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
Auditory Experiences	<input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
Aberrant Experiences	<input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
Passivity Experiences	<input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
Visual Experiences	<input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
Olfactory Experiences	<input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
Highest Single Score	<input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
Total Score	<input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>

Delusional Ideation	Present?	Number
Persecutory/Paranoid	<input type="radio"/> Yes <input type="radio"/> No	___
Referential	<input type="radio"/> Yes <input type="radio"/> No	___
Religious	<input type="radio"/> Yes <input type="radio"/> No	___
Grandiose	<input type="radio"/> Yes <input type="radio"/> No	___

REFERENCES

- Abramowitz, S., & Murray, J. (1983). Race effects in psychotherapy. In J. Murray & P.R. Abramson (Eds.), *Bias in psychotherapy* (pp. 215-255). New York: Academic Press.
- Adebimpe, V.R. (1981). Hallucinations and delusions in black psychiatric patients. *Journal of the National Medical Association*, 73, 517-520.
- Adebimpe, V. R., & Cohen, E. (1989). Schizophrenia and affective disorder in Black and Caucasian patients: A methodologic note. *Journal of the National Medical Association*, 81(7), 761-765.
- Adebimpe, V.R. (1981). Overview: Caucasian norms and psychiatric diagnosis of Black patients. *American Journal of Psychiatry*, 138(3), 279-285.
- Adebimpe, V.R. (2004). A second opinion on the use of white norms in psychiatric diagnosis of black patients. *Psychiatric Annals*, 34(7), 543-551.
- Adebimpe, V.R., Chu, C., Klein, H., & Lange, M. (1982). Racial and geographic differences in the psychopathology of schizophrenia. *American Journal of Psychiatry*, 139(7), Jul 888-891.
- Al-Issa, I. (1979). Socio-cultural factors in hallucination. *International Journal of Social Psychiatry*, 24, 167-176.
- Allen, J., Chapman, L., Chapman, J., Vuketich, J., & Frost, L. (1987). Prediction of psychoticlike symptoms in hypothetically psychosis-prone college students. *Journal of Abnormal Psychology*, 96, 83-88.
- American Psychiatric Association. (1994). *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*. Washington, DC: American Psychiatric Association; 1994.
- Andreasen, N. C. (1999). A unitary model of schizophrenia: Bleuler's "fragmented phrene" as schizencephaly. *Archives of General Psychiatry*, 56, 781-787.
- Appelbaum, P., Robbins, P., & Roth, L. (1999). Dimensional approach to delusions: comparison across types and diagnoses. *American Journal of Psychiatry*, 156, 1938-1943.
- Arnold, L., Keck, P., Collins, J., Wilson, R., Fleck, D., Corey, K., Amicone, J., Adebimpe, V., & Strakowski, S. (2004). Ethnicity and first-rank symptoms in patients with psychosis. *Schizophrenia Research*, 67, 207-212.
- Atallah, S., El-Dosoky, A., Coker, E., Nabil, K., & El-Islam, M. (2001). A 22-year retrospective analysis of the changing frequency and patterns of religious

- symptoms among inpatients with psychotic illness in Egypt. *Social Psychiatry and Psychiatric Epidemiology*, 36, 407-415.
- Bailey, B., West, K., Widiger, T., & Freiman, K. (1993). The convergent and discriminant validity of the Chapman Scales. *Journal of Personality Assessment*, 61, 121-135.
- Barrett, T., & Etheridge, J. (1992). Verbal hallucinations in normal—I: People who hear 'voices'. *Applied Cognitive Psychology*, 6, 379-387.
- Baughman, E., & Dahlstrom, W. (1972). Racial differences on the MMPI. In S. Guterman (Ed.), *Black psyche: The modal personality pattern of Black Americans* (pp. 166-188). Berkeley, CA: Glendessary Press.
- Bellack, A., Morrison, R., Wixted, J., & Mueser, K. (1990). An analysis of social competence in schizophrenia. *British Journal of Psychiatry*, 156, 809-818.
- Bentall, R., & Slade, P. (1985). Reliability of a scale measuring disposition towards hallucination. *Personality and Individual Differences*, 6, 379-387.
- Blanchard, J.J., Mueser, K.T. & Bellack, A. (1998). Anhedonia, positive and negative affect, and social functioning in schizophrenia. *Schizophrenia Bulletin*, 24, 413-424.
- Blanchard, J.J., Gangestad, S.W., Brown, S.A., & Horan, W.P. (2000). Hedonic capacity and schizotypy revisited: A taxometric analysis of social anhedonia. *Journal of Abnormal Psychology*, 109, 1, 87-95.
- Blanchard, J.J., Horan, W.P., Brown, S.A. (2001). Diagnostic differences in social anhedonia: A longitudinal study of schizophrenia and major depressive disorder. *Journal of Abnormal Psychology*, 110(3), 363-371.
- Bleuler, E. (1911, 1950). *Dementia praecox or the group of schizophrenias*. Zinkin, J., trans. New York, NY: International Universities Press.
- Blow, F., Zeber, J., McCarthy, J., Valenstein, M., Gillon, L., & Bingham, C.R. (2004). Ethnicity and diagnostic patterns in veterans with psychosis. *Social Psychiatry and Psychiatric Epidemiology*, 39, 841-851.
- Bojholm, S., & Stromgren, E. (1989). Prevalence of schizophrenia on the island of Bornholm in 1935 and in 1983. *Acta Psychiatrica Scandanavia*, 79, Suppl. 348, 157-166.
- Bourden, K., Rae, D., Locke, B., Narrow, W., & Reiger, D. (1992). Estimating the prevalence of mental disorders in U.S. adults from the Epidemiologic Catchment Area Study. *Public Health Reports*, 107, 663-668.

- Breslau, J., Aguilar-Gaxiola, S., Kendler, K., Su, Maxwell, Williams, D., & Kessler, R. (2006). Specifying race-ethnic differences in risk for psychiatric disorder in a USA national sample. *Psychological Medicine*, 36, 57-68.
- Carothers, J. (1951). Frontal lobe function and the African. *Journal of Mental Science*, 97(406), 12-48.
- Carr, W. (2000). Some reflections on spirituality, religion, and mental health. *Mental Health, Religion, and Culture*, 3(1), 1-12.
- Centers for Disease Control and Prevention. (2004) Self-reported frequent mental distress among adults—United States, 1993-2001. *MMWR*; 53, 963-966.
- Chapman, L., Chapman, J., Raulin, M. (1976). Scales for physical and social anhedonia. *Journal of Abnormal Psychology*, 85 (4), 374-382.
- Chapman, L.J., & Chapman, J.P. (1976). *The Infrequency Scale*. Unpublished test.
- Chapman, L.J., Chapman, J.P., & Raulin, M.L. (1978). Body-image aberration in schizophrenia. *Journal of Abnormal Psychology*, 87, 399-407.
- Chapman, L.J., Edell, W.S., & Chapman, J.P. (1980). Physical anhedonia, perceptual aberration, and psychosis proneness. *Schizophrenia Bulletin*, 6 (4), 639-653.
- Chapman, L., Chapman, J., & Miller, E. (1982). Reliabilities and intercorrelations of eight measures of proneness to psychosis. *Journal of Consulting & Clinical Psychology*, 50(2), 187-195.
- Chapman, L.J., Chapman, J.P., Numbers, J.S., Edell, W.S., Carpenter, B.N., & Beckfield, D. (1984). Impulsive nonconformity as a trait contributing to the prediction of psychotic-like and schizotypal symptoms. *Journal of Nervous and Mental Disease*, 172, 674-680.
- Chapman, L., & Chapman, J. (1985). Psychosis proneness. In M. Alpert (Ed.), *Controversies in schizophrenia* (pp. 157-174).
- Chapman, L., Chapman, J., Kwapil, T., Eckblad, M., & Zinser, M. (1994). Putatively psychosis-prone subjects 10 years later. *Journal of Abnormal Psychology*, 103 (2), 171-183.
- Chen, E., Martin, A., Matthews, K. (2006). Understanding health disparities: The role of race and socioeconomic status in children's health. *American Journal of Public Health*, 96, (4), 702-708.

- Chmielewski, P., Fernandes, L., Yee, C., & Miller, G. (1995). Ethnicity and gender in scales of psychosis proneness and mood disorders. *Journal of Abnormal Psychology*, 104(3), 464-470.
- Church, A. H. (1993). Estimating the effect of incentives on mail survey response rates: A meta-analysis. *Public Opinion Quarterly*, 57(1), 62-79.
- Cicchetti, D., & Sparrow, S. (1981). Developing criteria for establishing interrater reliability of specific items: Applications to assessment of adaptive behavior. *American Journal of Mental Deficiency*, 86(2), 127-137.
- Claridge, G., & Brocks, P. (1984). Schizotypy and hemisphere function-I. Theoretical considerations and measurement of schizotypy. *Personality and Individual Differences*, 5, 633-648.
- Claridge, G., McCreery, C., Mason, O., Bentall, R., Boyle, G., Slade, P., & Popplewell, D. (1996). The factor structure of 'schizotypal' traits: A large replication study. *British Journal of Clinical Psychology*, 35, 103-115.
- Claridge, G. (1997). Theoretical background and issue. In G. Claridge (Ed.), *Schizotypy: Implications for illness and health* (pp. 3-18). Oxford: Oxford University Press.
- Cohen, C., Magai, C., Yaffee, R., Walcott-Brown, L. (2004). Racial differences in paranoid ideation and psychoses in an older urban population. *American Journal of Psychiatry*, 161(5), 864-871.
- Coleman, M., Levy, D., Lenzenweger, M., & Holzman, P. (1996). Thought disorder, perceptual aberrations, and schizotypy. *Journal of Abnormal Psychology*, 105(3), 469-473.
- Combs, D., Penn, D., & Fenigstein, A. (2002). Ethnic differences in subclinical paranoia: An expansion of norms of the Paranoia Scale. *Cultural Diversity and Ethnic Minority Psychology*, 8(3), 248-256.
- Davies, M.F., Griffin, M., & Vice, S (2001). Affective reactions to auditory hallucinations in psychotic, evangelical and control groups. *British Journal of Clinical Psychology*, 40 (4), 361-371.
- DeHoyos, A., & DeHoyos, G. (1965). Symptomatology differentials between Negro and Caucasian schizophrenics. *International Journal of Social Psychiatry*, 11, 245-255.
- Dein, S. (1997). Mental health in a multiethnic society. *British Medical Journal*, 315, 473.

- Dein, S., & Loewenthal, K. (1999). Mysticism and psychiatry. *Mental Health, Religion, and Culture*, 2(2), 101-104.
- Diduca, D., & Joseph, S. (1997). Dimensions of religiosity and schizotypal traits. *British Journal of Clinical Psychology*, 36, 635-638.
- Eckblad, M., & Chapman, L.J. (1983). Magical ideation as an indicator of schizotypy. *Journal of Consulting and Clinical Psychology*, 51, 215-225.
- Eckblad, M., Chapman, L., Chapman, J., & Mishlove, M. (1982). *The Revised Social Anhedonia Scale*. Unpublished test, University of Wisconsin, Madison, WI.
- Edell, W. S. (1995). The psychometric measurement of schizotypy using the Wisconsin scales of psychosis-proneness. In G. A. Miller (Ed.), *The behavioral high-risk paradigm in psychopathology* (pp. 3-46). New York: Springer-Verlag.
- Ehrlich, E., Flexner, S., Carruth, G., & Hawkins, J. (Eds.) (1980). *American Dictionary*. Avon Books: New York, New York.
- Emsley, R. (2004). Ethnicity and treatment response in schizophrenia. *Psychiatric Times*, 21(7), 21-23.
- Emsley, R., Roberts, M., Rataemane, S., Pretorius, J., Oosthuizen, P., Turner, J., Niehaus, D., Keyter, N., & Stein, D. (2002). Ethnicity and treatment response in schizophrenia: A comparison of 3 ethnic groups. *Journal of Clinical Psychiatry*, 63(1), 9-13.
- Entwisle, D., & Astone, N. (1994). Some practical guidelines for measuring youths' race/ethnicity and socioeconomic status. *Child Development*, 65, 1521-1540.
- Eysenck, H. (1992). The definition and measurement of psychoticism. *Personality and Individual Differences*, 13, 757-785.
- Faris, R., & Dunham, W. (1939). *Mental Disorders in Urban Areas*. Chicago: University of Chicago Press.
- Fenigstein, A., & Vanable, P. (1992). Paranoia and self-consciousness. *Journal of Personality and Social Psychology*, 62, 129-138.
- Fenwick, P. (2001). The neurophysiology of religious experience. In I. Clarke (Ed.), *Psychosis and Spirituality: Exploring the New Frontier*. London: Whurr Publishers Ltd.
- First, M., Gibbon, M., Spitzer, R., Williams, J., & Benjamin, L. (1995). *User's guide for the Structured Clinical Interview for DSM-IV Personality Disorders*. New York: New York State Psychiatric Institute, Biometrics Research Department.

- First, M., Gibbon, M., Spitzer, R., & Williams, J. (1996). *User's Guide for the Structured Clinical Interview for DSM-IV Disorders, Research Version (SCID-I, Version 2.0)*. New York: Biometrics Research.
- Flaskerud, J., & Hu, L. (1992). Relationship of ethnicity to psychiatric diagnosis. *The Journal of Nervous and Mental Disease*, 180(5), 296-303.
- Fleiss, J. (1981). *Statistical methods for rates and proportions*. New York: Wiley, 1981.
- Frumkin, R. (1954). Race and major mental disorders. *Journal of Negro Education*, 23, 97-98.
- Fujioka, T., & Chapman, L. (1984). Comparison of the 2-7-8 MMPI profile and the Perceptual Aberration-Magical Ideation Scale in identifying hypothetically psychosis-prone college students. *Journal of Consulting and Clinical Psychology*, 52, 458-467.
- Getz, G., Fleck, D., & Strakowski, S. (2001). Frequency and severity of religious delusions in Christian patients with psychosis. *Psychiatry Research*, 103, 87-91.
- Goldman, H., Skodol, A., & Lave, T. (1992). Revising Axis V for DSM-IV: A review of measures of social functioning. *American Journal of Psychiatry*, 149, 1148-1156.
- Gooding, D., Tallent, K., & Matts, C. (2005). Clinical status of at-risk individuals 5 years later: Further validation of the psychometric high-risk strategy. *Journal of Abnormal Psychology*, 114(1), 170-175.
- Gottesman, I.I. (1991). *Schizophrenia genesis: The origins of madness*. San Francisco: Freeman.
- Goulding, A. (2004). Schizotypy models in relation to subjective health and paranormal beliefs and experiences. *Personality and Individual Differences*, 37, 157-167.
- Grier, W., & Cobb, P. (1968). *Black Rage*. New York: Basic Books.
- Guarnaccia, P., & Parra, P. (1996). Ethnicity, social status, and the families' experiences of caring for a mentally ill family member. *Community Mental Health Journal*, 32(3), 243-260.
- Guthrie, R. (1974). *Even the rat was white*. New York: Harper and Row.
- Hafner, H., Maurer, K., Trendler, G., an der Heiden, W., & Schmidt, M. (2005). The early course of schizophrenia and depression. *European Archives of Psychiatry and Clinical Neuroscience*, 255(3), 167-173.

- Hagnell, O. (1966). A prospective study of the incidence of mental disorder. Svenska Bokforlaget, Lund.
- Hayes, J. R., & Hatch, J. A. (1999). Issues in measuring reliability: Correlation versus percentage of agreement. *Written Communication*, 16(3), 354-367.
- Hickling, F., & Rodgers-Johnson, P. (1995). The incidence of first-contact schizophrenia in Jamaica. *British Journal of Psychiatry*, 167, 193-196.
- Hollingshead, A., & Redlich, F. (1958). *Social class and mental illness: A community study*. New York: John Wiley.
- Horan, W., Blanchard, J.J., Gangestad, S., & Kwapil, T. (2004). The psychometric detection of schizotypy: Do putative schizotypy indicators identify the same latent class? *Journal of Abnormal Psychology*, 113(3), 339-357.
- Huberty, C. (1984). Issues in the use and interpretation of discriminant analysis. *Psychological Bulletin*, 95, 156-171.
- Huberty, C., & Morris, J. (1989). Multivariate analysis versus multiple univariate analyses. *Psychological Bulletin*, 105(2), 302-308.
- Hunt, L., & Hunt, M. (2001). Race, region, and religious involvement: A comparative study of Caucasians and African Americans. *Social Forces*, 80(2), 605-631.
- Jablensky, A., Sartorius, N., Ernberg, G., Anker, M., Korten, A., Cooper, J., Day, R., & Bertelsen, A. (1992). Schizophrenia: Manifestations, incidence and course in different cultures. A World Health Organization ten-country study. Psychological Medicine Monograph suppl 20, Cambridge University Press, Cambridge.
- Jablensky, A. (1997). The 100-year epidemiology of schizophrenia. *Schizophrenia Research*, 28, 111-125.
- Jablensky, A. (2000). Epidemiology of schizophrenia: The global burden of disease and disability. *European Archives of Psychiatry and Clinical Neuroscience*, 250, 274-285.
- Jackson, M. (1997). Benign schizotypy? The case of spiritual experience. In G.S. Claridge (Ed.), *Schizotypy: Relations to illness and health*. Oxford: Oxford University Press.

- Jaco, G. (1960). *Social Epidemiology of Mental Disorders*. New York: Russell Sage Foundation.
- Jones, B.E., & Gray, B. (1986). Problems in diagnosing schizophrenia and affective disorders among blacks. *Hospital and Community Psychiatry*, 37, 61-65.
- Jones, E., & Thorne, A. (1987). Rediscovery of the subject: Intercultural approaches to clinical assessment. *Journal of Consulting and Clinical Psychology*, 55(4), 488-495.
- Joseph, S., & Diduca, D. (2001). Schizotypy and religiosity in 13-18 year old school pupils. *Mental Health, Religion, & Culture*, 4(1), 63-69.
- Katz, I. (1969). A critique of personality approaches to Negro performance, with research suggestions. *Journal of Social Issues*, 25(3), 13-27.
- Kavanaugh, D. (1992). Recent developments in expressed emotion and schizophrenia. *British Journal of Psychiatry*, 160, 601-620.
- Kebede, D., Alem, A., Shibre, T., Fekadu, A., Fekadu, D., Negash, A., Jacobson, L., & Kullgren, G. (1999). The Bitajira-Ethiopia study of the course and outcome of schizophrenia and bipolar disorders. I. Description of study settings, methods and cases. Personal communication: unpublished manuscript.
- Kendler, K.S., Gruenberg, A.M., & Strauss, J. (1981). An independent analysis of the Copenhagen Sample of the Danish adoption study of schizophrenia. *Archives of General Psychiatry*, 38, 982-984.
- Kendler, K.S. (1988). Familial aggregation of schizophrenia and schizophrenia spectrum disorders: Evaluation of conflicting results. *Archives of General Psychiatry*, 45, 377-383.
- Kendler, K.S., McGuire, M., Gruenberg, A., O'Hare, A., Spellman, M., & Walsh, D. (1992). The Roscommon Family Study, I: methods, diagnosis of probands and risk of schizophrenia in relatives. *Archives of General Psychiatry*, 49, 106-110.
- Kendler, K.S., McGuire, M., Gruenberg, A., O'Hare, A., Spellman, M., & Walsh, D. (1993). The Roscommon family study III: Schizophrenia-related personality disorders in relatives. *Archives of General Psychiatry*, 50, 781-788.
- Kendler, K., Gallagher, T., Abelson, J., & Kessler, R. (1996). Lifetime prevalence, demographic risk factors, and diagnostic validity of nonaffective psychosis as assessed in a US community sample. The National Comorbidity Survey. *Archives of General Psychiatry*, 53(11), 1022-1031.

- Kendler, K., Thacker, L., & Walsh, D. (1996). Self-report measures of schizotypy as indices of family vulnerability to schizophrenia. *Schizophrenia Bulletin*, 22(3), 511-520.
- Kerns, J. (2005). Positive schizotypy and emotion processing. *Journal of Abnormal Psychology*, 114(3), 392-401.
- Kessler, R., McGonagle, K., Zhao, S., Nelson, C., Hughes, M., Eshleman, S., Wittchen, H., & Kendler, K. (1994). Lifetime and 12-month prevalence of DSM-III disorders in the United States: Results from the National Comorbidity Survey. *Archives of General Psychiatry*, 51, 8-10.
- Kety, S.S., Rosenthal, D., Wender, P.H., Schulsinger, F. (1968). The types and prevalence of mental illness in the biological and adoptive family members of adopted schizophrenics. In D. Rosenthal and S.S. Kety (Eds.). *The Transmission of Schizophrenia*. Elmsford, NY: Pergamon Press.
- Kraepelin, E. (1913, 1919). *Dementia praecox and paraphrenia*. Edinburgh, Scotland: Livingstone.
- Kulhara, P., & Chandiramani, K. (1988). Outcome of schizophrenia in India using various diagnostic systems. *Schizophrenia Research*, 1, 339-349.
- Kwapil, T., Miller, M., Zinser, M., Chapman, J., & Chapman, L. (1996). Magical ideation and social anhedonia as predictors of psychosis-proneness: A partial replication. *Journal of Abnormal Psychology*, 106, 491-495.
- Kwapil, T., Miller, M., Zinser, M., Chapman, J., & Chapman, L. (1997). Magical ideation and social anhedonia as predictors of psychosis proneness: A partial replication. *Journal of Abnormal Psychology*, 106, (3), 491-495.
- Kwapil, T. (1998). Social anhedonia as a predictor of the development of schizophrenia-spectrum disorders. *Journal of Abnormal Psychology*, 107(4), 558-565.
- Kwapil, T., Chapman, L., & Chapman, J. (1999). Validity and usefulness of the Wisconsin Manual for Assessing Psychotic-like Experiences. *Schizophrenia Bulletin*, 25(2), 363-375.
- Kwapil, T., Crump, R., & Pickup, D. (2002). Assessment of psychosis proneness in African-American college students. *Journal of Clinical Psychology*, 58(12), 1601-1614.
- Lawson, W., Yesavage, J., & Werner, P. (1984). Race, violence, and psychopathology. *Journal of Clinical Psychiatry*, 45, 294-297.

- Lefley, H. (1998). Families, culture, and mental illness: Constructing new realities. *Psychiatry*, 61, 335-355.
- Lezenweger, M., & Loranger, A. (1989). Psychosis proneness and clinical psychopathology: Examination of the correlates of schizotypy. *Journal of Abnormal Psychology*, 98(1), 3-8.
- Levin, J., Taylor, R., & Chatters, L. (1995). A multi-dimensional measure of religious involvement in black Americans. *The Sociological Quarterly*, 36, 157-173.
- Lin, T., Chu, H., Rin, H., Hsu, C., Yeh, E., & Chen, C. (1989). Effects of social change on mental disorders in Taiwan: Observations based on a 15-year follow-up survey of general populations in three communities. *Acta Psychiatrica Scandanavia*, 79 suppl. 348, 11-34.
- Lin, K., & Kleinman, A. (1988). Psychopathology and clinical course of schizophrenia: A cross-cultural perspective. *Schizophrenia Bulletin*, 14(4), 555-567.
- Liss, J.L., Welner, A., & Robins, E. (1973). Psychiatric symptoms in white and black inpatients: I. Record study. *Comprehensive Psychiatry*, Vol. 14(6), 475-481.
- Lopez, S. R. (1989). Patient variable biases in clinical judgment: Conceptual overview and methodological considerations. *Psychological Bulletin*, 106, 184-203.
- Lopez, S., & Guarnaccia, P. (2000). Cultural psychopathology: Uncovering the social world of mental illness. *Annual Review of Psychology*, 51, 571-598.
- Lopez, S., & Nunez, J. (1987). Cultural factors considered in selected diagnostic criteria and interview schedules. *Journal of Abnormal Psychology*, 96 (3), 270-272.
- Loranger, A.W., Andreoli, A., Berger, P., Buchheim, P., Channabasavanna, S.M., Coid, B., Dahl, A., Diekstra, R.F.W., Ferguson, B., Jaccobsberg, L.B., Janca A., Mombour, W., Pull, C., Ono, Y., Reigier, D.A., Santorius, N., & Sumba, R.O. (1995). *The International Personality Disorder Examination (IPDE) Manual*. New York: World Health Organization.
- Loring, M., & Powell, B. (1988). Gender, race, and DSM-III: A study of objectivity of psychiatric diagnostic behavior. *Journal of Health and Social Behavior*, 29, 1-22.
- Mahy, G., Mallett, R., Leff, J., & Bhugra, D. (1999). First-contact incidence rate of schizophrenia on Barbados. *British Journal of Psychiatry*, 175, 28-33.
- Maltby, J., Garner, I., Lewis, C., & Day, L. (2000). Religious orientation and schizotypal traits. *Personality and Individual Differences*, 28, 143-151.

- Malzberg, B. (1963). Mental disorders in the US. In A. Deutsch & H. Fishman (Eds.), *Encyclopedia of Mental Health*. New York: Franklin Watts, Inc.
- Marsella, A., & Yamada, A.M. (2000). Culture and Mental Health: An Introduction and Overview of Foundations, Concepts, and Issues. In I. Cuellar & F. Paniagua.
- Matarazzo, J.D. (1983). The reliability of psychiatric and psychological diagnosis. *Clinical Psychology Review*, 3, 103-145.
- McNaught, A., Jeffreys, S., & Harvey, C. et al. (1997). The Hampstead Schizophrenia Survey 1991. II. Incidence and migration in inner London. *British Journal of Psychiatry*, 170, 307-311.
- Medoff, M., & Skov, I. (1992). Religion and behavior: An empirical analysis. *Journal of Socio-Economics*, 21(2), 143-153.
- Meehl, P.E. (1962). Psychopathology and purpose. In: Hoch, P., Zubin, J. (Eds.), *The Future of Psychiatry* (pp. 61-69). New York, NY: Grune & Stratton.
- Meehl, P. (1964). *Manual for use with checklist of schizotypic signs*. Report No. PR-73-5. Minneapolis: University of Minnesota.
- Meehl, P.E. (1973). MAXCOV-HITMAX: A taxometric search method for loose genetic syndromes. *Psychodiagnosis: Selected papers* (pp. 200-224). Minneapolis, MN: University of Minnesota Press.
- Meehl, P.E. (1989). Schizotaxia revisited. *Archives of General Psychiatry*, 46, 935-944.
- Meehl, P.E. (1990). Toward an integrated theory of schizotaxia, schizotypy, and schizophrenia. *Journal of Personality Disorders*, 4, 1-99.
- Meyer, S., Bearden, C., Lux, S., Gordon, J., Johnson, J., O'Brien, M., Neindam, T., Loewy, R., Ventura, J., & Cannon, T. (2005). The psychosis prodrome in adolescent patients viewed through the lens of DSM-IV. *Journal of Child and Adolescent Psychopharmacology*, 15(3), 434-451.
- Mezzich, J.E., Kirmayer, L., Kleinman, A., Fabrega, H., Parron, D., Good, B., Lin, K., & Manson, S. (1999). The place of culture in DSM-IV. *Journal of Nervous & Mental Disease*, 187(18), 457-464.
- Minsky, S., Vega, W., Miskimen, T., Gara, M., Escobar, J. (2003). Diagnostic patterns in Latino, African American, and European American psychiatric patients. *Archives of General Psychiatry*, 60, 637-644.
- Mishlove, M., & Chapman, L. (1985). Social anhedonia in the prediction of psychosis proneness. *Journal of Abnormal Psychology*, 94(3), 384-396.

- Mohr, S., & Huguelet, P. (2004). The relationship between schizophrenia and religion and its implications for care. *Swiss Medicine Weekly*, 134, 369-376.
- Morey, L. C. (1991). *The Personality Assessment Inventory Professional Manual*. Odessa, FL: Psychological Assessment Resources.
- Morrison, A., Wells, A., & Nothard, S. (2000). Cognitive factors in predisposition to auditory and visual hallucinations. *British Journal of Clinical Psychology*, 39, 67-78.
- Mukherjee, S., Shukla, S., Woodle, J., Rosen, A., & Olarte, S. (1981). Misdiagnosis of schizophrenia in bipolar patients: A multiethnic comparison. *American Journal of Psychiatry*, 140, 1571-1574.
- Ndeti, D. (1988). Psychiatric phenomenology across countries: Constitutional, cultural, or environmental? *Acta Psychiatrica Scandinavia (Suppl.)*, 344, 33-44.
- Neighbors, H., Trierweiler, S., Munday, C., Thompson, E., Jackson, J., Binion, V., & Gomez, J. (1999). Psychiatric diagnosis of African Americans: Diagnostic divergence in clinician structured and semistructured interviewing conditions. *Journal of the National Medical Association*, 91, 601-612.
- Neighbors, H., Trierweiler, S., Ford, Briggett, C., & Muroff, J. (2003). Racial differences in DSM diagnosis using a semi-structured instrument: The importance of clinical judgement in the diagnosis of African Americans. *Journal of Health and Social Behavior*, 44(3), 237-256.
- Newman, D.L., Moffitt, T.E., Caspi, A., & Silva, P.A. (1998). Comorbid mental disorders: Implications for treatment and sample selection. *Journal of Abnormal Psychology*, 107, 305-311.
- Ohaeri, J. (1993). Long-term outcome of treated schizophrenia in a Nigerian cohort. Retrospective analysis of the 7-year follow-ups. *Journal of Nervous and Mental Disease*, 181, 514-516.
- Parnas, J., Cannon, T.D., Jacobsen, B., Schulsinger, H., Schulsinger, F., Mednick, S.A. (1993). Lifetime DSM-III-R diagnostic outcomes in the offspring of schizophrenia mothers. Results from the Copenhagen Risk Study. *Archives of General Psychiatry*, 50, 707-714.
- Pasamanick, B. (1963). Some misconceptions concerning differences in racial prevalence of mental disease. *American Journal of Orthopsychiatry*, 33, 72-86.
- Peters, E., Day, S., McKenna, J., & Orbach, G. (1999). Delusional ideation in religious and psychotic populations. *British Journal of Clinical Psychology*, 38, 83-96.

- Pote, H., & Orrell, M. (2002). Perceptions of schizophrenia in multi-cultural Britain. *Ethnicity and Health*, 7(1), 7-20.
- Prange, A., & Vitols, M. (1962). Cultural aspects of the relatively low incidence of depression in southern Negroes. *International Journal of Social Psychiatry*, 8, 104-112.
- Proshansky, H., & Newton, P. (1974). Color: The nature and meaning of Negro self-identity. In P. Watson (Ed.), *Psychology and Race* (pp. 176-212). Chicago: Aldine.
- Puri, B., Lekh, S., Nijran, K., Bagary, M., & Richardson, A. (2001). SPECT neuroimaging in schizophrenia with religious delusions. *International Journal of Psychophysiology*, 40, 143-148.
- Raine, A. (1991). The Schizotypal Personality Questionnaire (SPQ): A scale for the assessment of schizotypal personality based on DSM-III-R criteria. *Schizophrenia Bulletin*, 17, 555-565.
- Raskin, A., Crook, T., & Herman, K. (1975). Psychiatric history and symptom differences in black and Caucasian depressed inpatients. *Journal of Consulting and Clinical Psychology*, 43, 73-80.
- Robins, L., & Regier, D. (1991). *Psychiatric disorders in America: The Epidemiologic Catchment Area Study*. New York: The Free Press.
- Rogler, L. H. (1993). Culture in psychiatric diagnosis: An issue of scientific accuracy. *Psychiatry: Interpersonal & Biological Processes*, 56 (4), 324-328.
- Roof, W., & McKinney, W. (1987). *American Mainline Religion*. Rutgers University Press.
- Ruiz, P. (ed.). (2000). *Ethnicity and psychopharmacology. Review of Psychiatry*, 19(4). Washington, D.C.: American Psychiatric Press.
- Sabshin, M., Diesenhau, H., & Wilkerson, R. (1970). Dimensions of institutional racism in psychiatry. *American Journal of Psychiatry*, 127, 787-793.
- Sartorius, N., Jablensky, A., Korten, A., Ernberg, G., Anker, M., Cooper, J., & Day, R. (1986). Early manifestations and first-contact incidence of schizophrenia in different cultures. *Psychological Medicine*, 16, 909-928.
- Schneider, K. (1959). *Clinical Psychopathology*. Translated by Hamilton, M.W., Anderson, E.W. New York: Grunne and Stratton.

- Schwab, M. (1977). A study of reported hallucinations in a southeastern county. In J. Schwab, R. Bell, & G. Warhert (Eds.), *Social Order and Mental Health*. New York: Brunner/Mazel.
- Share, D. L. (1984). Interpreting the output of multivariate analyses: A discussion of current approaches. *British Journal of Psychology*, 75, 349-362.
- Sher, K.J., & Trull, T.J., (1996). Methodological issues in psychopathology research. *Annual Review of Psychology*, 47, 371-400.
- Shrout, P., & Fleiss, J. (1979). Intra-class correlations: Uses in assessing rater reliability. *Psychological Bulletin*, 86, 420-428.
- Siddle, R., Haddock, G., Tarrier, N., & Faragher, E. (2002). Religious delusions in patients admitted to hospital with schizophrenia. *Social Psychiatry and Psychiatric Epidemiology*, 37, 130-138.
- Simon, R., Fleiss, J., Gurland, B., Stiller, P., & Sharpe, L. (1973). Depression and Schizophrenia in black and Caucasian mental patients. *Archives of General Psychiatry*, 28, 509-512.
- Singer, B. (1977). *Racial factors in psychiatric intervention*. San Francisco: R & E Research Associates.
- Slade, P., & Bentall, R. (1988). *Sensory deception: Towards a scientific analysis of hallucinations*. London: Croom Helm.
- Smedley, B., Stith, A., & Nelson, A. (2002). *Unequal treatment: Confronting racial and ethnic disparities in health care (summary)*. Pp. 1-28. Washington, DC: Institute of Medicine, National Academy Press.
- Smith, M. (1980). Sex bias in counseling and psychotherapy. *Psychological Bulletin*, 87, 392-407.
- Snowden, L., & Cheung, F. (1990). Use of inpatient mental health services by members of ethnic minority groups. *American Psychologist*, 45, 347-355.
- Spitzer, R., Endicott, J., & Robins, E. (1978). *Research Diagnostic Criteria (RDC) for a Selected Group of Functional Disorders* (3rd ed.). New York: New York State Psychiatric Institute.
- Stemler, S.E. (2004). A comparison of consensus, consistency, and measurement approaches to estimating interrater reliability. *Practical Assessment, Research & Evaluation*, 9(4).

- Stifler, K., Greer, J., Sneek, W., & Dovenmuehle, R. (1993). An empirical investigation of the discriminability of reported mystical experiences among religious contemplatives, psychotic inpatients, and normal adults. *Journal for the Scientific Study of Religion*, 32(4), 366-372.
- Strakowski, S., Flaum, F., Amador, X., Bracha, H., Pandurangi, A., Robinson, D., & Tohen, M. (1996). Racial differences in the diagnosis of psychosis. *Schizophrenia Research*, 21, 117-124.
- Strauss, J. (1969). Hallucinations and delusions as points on continua function. *Archives of General Psychiatry*, 21, 581-586.
- Taylor, R., Chatters, L., Jayakody, R., & Levin, J. (2001). Black and Caucasian differences in religious participation: A multisample comparison. *Journal for the Scientific Study of Religion*, 35(4), 403-410.
- Tien, A. (1991). Distributions of hallucinations in the population. *Social Psychiatry and Psychiatric Epidemiology*, 26, 287-292.
- Trierweiler, S., & Stricker, G. (1998). *The scientific practice of professional psychology*. New York: Plenum.
- Trierweiler, S., Neighbors, H., Munday, C., Thompson, E., & Gomez, J. (2000). Clinician attributions associated with the diagnosis of schizophrenia in African American and Non-African American Patients. *Journal of Consulting and Clinical Psychology*, 68(1), 171-175.
- Vitols, M., Waters, H., & Keeler, M. (1963). Hallucinations and delusions in Caucasian and Negro schizophrenics. *American Journal of Psychiatry*, 120(5), 472-476.
- Westermeyer, J. (1987). Cultural factors in clinical assessment. *Journal of Consulting and Clinical Psychology*, 55, 471-478.
- Whaley, A. (1997). Ethnicity/race, paranoia, and psychiatric diagnoses: Clinician bias versus sociocultural differences. *Journal of Psychopathology and Behavioral Assessment*, 19(1), 1-19.
- Whaley, A. (2002). Cultural mistrust predicts age at first hospitalization for African-American psychiatric patients. *Journal of Nervous & Mental Disease*, 190(2), 121-124.
- Whaley, A. (2004). A two-stage method for the study of cultural bias in the diagnosis in the diagnosis of schizophrenia in African Americans. *Journal of Black Psychology*, 30(2), 167-186.

- White, J. Joseph, S., & Neill, A. (1995). Religiosity, psychoticism and schizotypal traits, *Personality and Individual Differences*, 19, 847-851.
- Williams, J. B.W., Gibbon, M., First, M.B., Spitzer, R.L., Davies, M., Borus, J., Howes, M.J., Kane, J., Pope, Jr., H.G., Rounsaville, B., & Wittchen, H.U. (1992). The Structured Clinical Interview for DSM-III-R (SCID). II: Multisite test-retest reliability. *Archives of General Psychiatry*, 49, 630-636.
- Wilson, D., & Lantz, E. (1957). The effect of culture change of the Negro race in Virginia as indicated by a study of state hospital admission. *American Journal of Psychiatry*, 114, 25-32.
- Wulff, D. (1997). *Psychology of religion: Classic and contemporary* (2nd ed.). London: John Wiley and Sons.
- Young, J. G., O'Brien, J., Gutterman, E., & Cohen, P. (1987). Research on the clinical interview. *American Academy of Child and Adolescent Psychiatry*, 26,(5), 613-620.
- Yung, A., Phillips, L., Yuen, H., & McGorry, P. (2004). Risk factors for psychosis in an ultra high-risk group: psychopathology and clinical features. *Schizophrenia Research*, 67, 131-142.
- Verdugo, R. (2002). Race, Ethnicity, Class, and school dropouts: A policy perspective. *The Trotter Institute Review*, 14(1), 83-107.